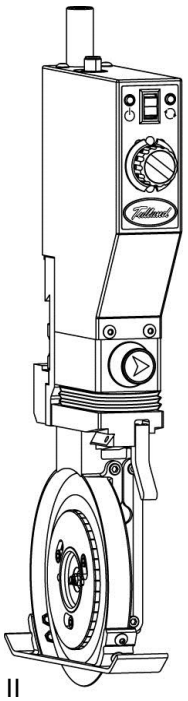
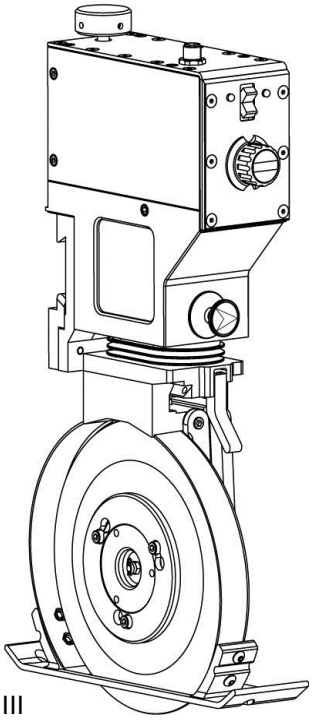
TIDLAND SLITTING SOLUTIONS

Tidland e-Knifeholder

Installation, Operation and Maintenance



Class II



Class III

EN

Class II and III

MI 686810 1 Q

CONTENTS

Contact Information 4
Receiving and Unpacking 4
Before Operation 4
Introduction 5
About these Operating Instructions 5
Proper Use 6
Operating Principle 6
Safety Equipment 6
Emergency Stop 6
Safety Symbols Used in this Manual 8
Residual Risk 9
Knifeholder System Requirements 10
Continuity Requirements 10
At Installation 10
E-stop Circuit 10
Installing the Power Cabinet 11
Electrical Ratings 11
Commissioning the Cabinet 11
Knifeholder Orientation 11
Knifeholder Components 11
Function Control Knob 13
Installation 14
Select Slitting Type 14
Recommended Web Penetration 14
Recommended Knifeholder Setback (For Tangent Slitting Only) 15
Mounting the Guide Bar 16
Determine Space Requirements 16
Determine Mounting Dimensions 17
Methods for Measuring Blade Overlap 18
Install Guide Bar on Support Beam 18
Mount Knifeholder to Guide Bar 19
Easy Glider Linear Bearing 19
Manual Mount 19
Cant Key 20
Selection 20
Orientation 20
Web Path 21
Blade Cartridge 22
Removing 22
Reversing 22
Reinstalling 22
Operation 23
Knifeholder Power and Communication 23
Plugging in a Knifeholder 23
External Engage Signal 24
Knifeholder Setup and Calibration 25
Sidestroke Lever and Actuator 26
Cleaning during operation 26
Knifeholder Address 27
Maintenance 29
Preventive Maintenance 29
Cant Key, Changing the O-ring 29
e-Knifeholder Power Cabinet 30
Replacing a Fuse 30
Replacing the Power Supply 30
Blade Cartridge Transport Tool 31
Installing the Tool 31
Removing the Cartridge 31
Removing Knifeholder from Guide Bar 32
Knife Blades 33
Minimum Blade Diameter 33
Changing a Knife Blade 34
Blade Grinding and Finishing 35
Cartridge-to-Knifeholder Interface 36
Cleaning the Sidestroke Actuator Parts 36
Cleaning the Sidestroke Lever 37

CONTENTS

Measuring Resistance 37
Drive Shaft Bind, Releasing 38
e-Knifeholder Fuse, Replacing 39
Sensors, Replacing 40
Class II 40
Class III 41
Backplate, Reinstall – Class II and III 43
Linear Bearing, Replacing 44
Knifeholder Disassembly, Class II 45
Accessing the Motors 45
Downstroke Drive Assembly and Lubrication 46
Sidestroke Drive Assembly and Lubrication 48
Knifeholder Disassembly, Class III 52
Accessing the Motors 52
Downstroke Drive Assembly and Lubrication 54
Sidestroke Drive Assembly and Lubrication 57
Lubrication 61
Dovetail 61
Cartridge 61
Assembly Diagram and Parts List 62
Control Body 62
Class II 62
Class III 64
Cartridge 66
Knifeholder Mount 68
Easy Glider Linear Bearing Mount 68
Brake Shoe 68
Manual Mount 70
Specifications 71
Tidland Knifeholder Accessories 72
Troubleshooting 73
Knifeholder Performance 73
Slit Quality 75
Software User Interface 76
Main Screen 76
Title Bar / Demo Mode 77
Knifeholder Icons 78
Blade Details 80
Main Screen Parameters 81
Recipes 81
Overlap 81
Side Force 81
Main Screen Buttons 82
Main Screen Menus 83
Options 83
Setting Units and Language 83
Help 83
Manage Recipes 85
Maintenance 88
Diagnostics 88
Installation Notes 88
Software Revision History 91

CONTACT INFORMATION

Manufactured by

Tidland

2305 SE 8th Avenue
Camas WA 98607

Tel.
360.834.2345
800.426.1000
Fax
360.734.5865

Web: www.maxcessintl.com
Email: tidland @maxcessintl.com

Authorized Representative

Fife-Tidland GmbH

Max-Planck-Strasse 8-10
65779 Kelkheim
Germany

Siemensstrasse 13-15
48683 Ahaus
Germany

Tel.
+49.6195.7002.0
+49.6195.7002.933

RECEIVING AND UNPACKING

- Handle and unpack the equipment carefully. Upon arrival, check shipment against the packing list.
- Promptly report to the carrier any damaged equipment.
- Equipment that will not be installed immediately should be stored in a clean, dry location.
- Be careful to prevent moisture, dust, and dirt from accumulating in storage and installation areas.
- Before operation, check for damaged or missing fasteners. The e-Knifeholder is designed to operate at optimal levels when all fasteners are installed and tightened to recommended torque values.
- If any fasteners are damaged or missing, please contact the equipment manufacturer or Tidland Corporation Customer Service.
- When installing the e-Knifeholder with an *Easy* Glider mount, be sure to retain the short piece of linear rail after installation is complete. You will need the rail to remove and reinstall the e-Knifeholder.

BEFORE OPERATION

Read the Safety section of this manual before installing the cabinet or handling a knifeholder.

If not using a PC supplied by Tidland, install the software that was supplied on the CD with your e-Knifeholders. This will ensure that you have the most current version of the software on your computer.

To avoid damage to the e-Knifeholder, be sure that all cables are properly plugged in **before** applying system power.

For systems with the e-Knifeholder User Interface Software: The e-Knifeholder Help Tool is for use with the Windows version of the Tidland Corporation Control System. If you have any questions that cannot be answered with the e-Knifeholder Help Tool, please contact Tidland.

INTRODUCTION

About these Operating Instructions

These operating instructions are intended to help in successful and safe operation of the Tidland e-Knifeholder.

The operating instructions contain important information on operating the e-Knifeholder safely, properly and efficiently. Observing these instructions help to avoid dangers and increase the service life of the e-Knifeholder.

No part of these or the following instructions should be construed as conflicting with or nullifying the instructions from other sources.

The operating instructions must be carefully kept and must always be available throughout the service life of the e-Knifeholder system.

When using the Tidland e-Knifeholder, always follow basic safety precautions to reduce the risk of personal injury.

Your company's safety instructions and procedures should always be followed.

When using this product with any other equipment or machinery, all safety requirements stipulated by that equipment or machinery manufacturer must be followed.

Compliance with local, state, and federal safety requirements is your responsibility.

Be familiar with the hazards and safety requirements in your work environment and always work safely.

This equipment is intended to be installed and used with a larger machine or factory. For compliance to EU machinery directive 2006/42/EC the end user should provide a complete risk analysis conducted per EU directives before putting this equipment into service.

These are the original instructions, written in English.

INTRODUCTION

Proper Use

The Tidland e-Knifeholder is designed and manufactured for cutting material webs according to the shear slitting procedure in the direction of motion of the material. Any other use is deemed as not being in accordance with the intended purpose. The manufacturer will not be liable for any damage resulting from this improper use. The user/operator bears sole responsibility for the risk.

Operating Principle

The e-Knifeholder has motorized overlap and side force control. The overlap and side force are configured using e-Knifeholder software provided with the system. Tidland can also provide an optional industrial touchscreen PC with software to adjust overlap and side force.

The e-Knifeholder comes configured with a default overlap of 0.035" and 5 lbs of side force. Use the function control knob to calibrate the e-Knifeholder. See page 76 for operation instructions.

Safety Equipment

The part of the circular blade not used for cutting is safeguarded by a fixed cover against unintentional contact.

The overlap and side force are applied with the "engage" function. If the electrical power fails, the blade remains with the current overlap and side force.

All replacement parts used on this product should be made to original Tidland specifications.

Emergency Stop

E-stop Circuit

This TUV (or UL) listed device is not provided with its own E-stop and may only be installed in a completed system equipped with a compliant E-stop circuit.

The E-stop circuit gives the operator the ability to shut the entire system off quickly in case of an emergency.

Upon activation by an E-stop button, power shall also be removed from the system.

Removing the power from the cabinet creates a zero energy state, category 0, according to the NFPA-79* (controlled stop).

Upon releasing the E-stop button, power is not delivered until some deliberate action is completed. Restarting of the machine requires operation of the start button.

Follow local electrical codes to conform with E-stop conditions.

Lockout/Tagout Procedures

To prevent unexpected system startup, always follow your company's lock-out/tag-out procedures and test the system for a zero-energy state before beginning maintenance on the Tidland e-Knifeholder system.

TUV and UL

TUV and UL approved e-Knifeholders have the TUV or UV mark affixed to the back of the knifeholder.

* EN60201-1 (European Union standard)

Instructions for use

The problem-free and safe operation of the Tidland e-Knifeholder is reliant on proper transportation and storage, expert installation and commissioning and on use in accordance with the intended purpose.

Only persons who are familiar with the installation, commissioning, operation and maintenance of the e-Knifeholder and who possess the necessary qualifications for their activities may work on the e-Knifeholder.

Please note the following:

The content of these operating instructions

Any safety instruction on the device

The machine manufacturer's specifications

The applicable accident prevention and environmental protection guidelines

Information about safety instructions

The safety instructions and symbols described in this section are used in these operating instructions. They are used to avoid possible dangers for users and to prevent material damage.

SIGNAL WORD
Source of danger and its results
Avoiding dangers

The signal word **DANGER** refers to the danger of death or serious bodily injuries.

The signal word **WARNING** refers to the danger of moderate to severe bodily injuries.

The signal word **CAUTION** refers to the danger of slight to moderate bodily injuries or material damage.

Safety Symbols Used in this Manual

	Caution Reference to general hazards that may result in bodily injuries or damage to the device.
	Warning Knife blades are sharp. Can cause serious injury to hands. Do not remove safety guards. Use only recommended tools when handling knife blades.
	Warning Pinch point. Keep hands away from moving knifeholder parts.
	Danger Arc flash and shock hazard. Follow ALL requirements in NFPA 70E for safe work practices and for Personal Protective Equipment (PPE).
	Information Disconnect power before servicing the Tidland e-Knifeholder cabinet.
	Information This mark identifies a process and/or operator steps. Execute steps in sequence top to bottom. Observance of correct procedures will assure a safe, sound and efficient handling of the knifeholder.
	Caution To avoid static discharge, use proper grounding methods.

Residual Risk

A residual risk remains, even if all safety regulations during the operation of the Tidland e-Knifeholder are observed. Any person working with the e-Knifeholder should be aware of such residual risks and must follow the instructions intended to avoid such residual risks developing into accidents or damage.

Warning

Work on electrical equipment shall be performed by authorized professionals only.

Before beginning any maintenance on the e-Knifeholder, turn off main switch on the e-Knifeholder cabinet. Disconnect the power to secure the unit against unintended restarting, and then test for zero-energy state.

Warning

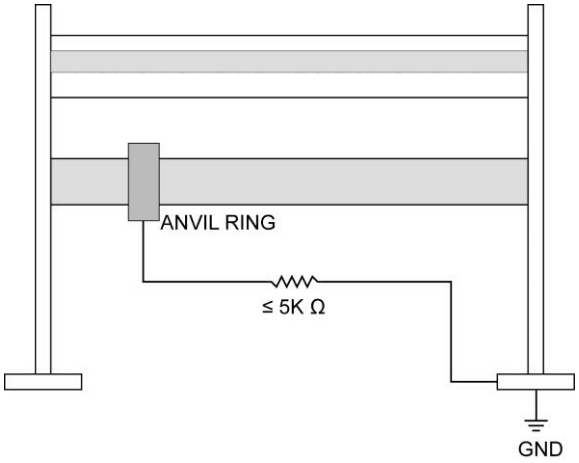
Duration of blade rotation during emergency shutdown (activation of the E-stop button) is system-dependent.

Warning

Keep hands away from moving knifeholder parts.

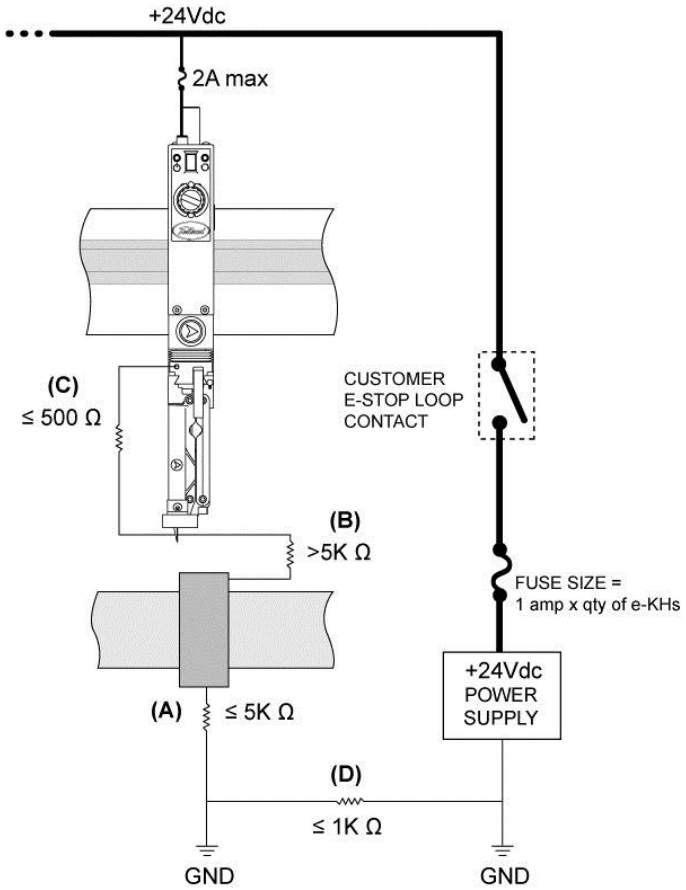
Continuity Requirements

- For the e-Knifeholder to calibrate and function properly, you must verify continuity between system components.
- Use an ohmmeter to confirm ≤5KΩ between ground and the anvil ring.
- If using an expanding knife shaft, test with the shaft expanded.
- If resistance exceeds 5KΩ, call Tidland Customer Service; modifications to improve continuity may be required.



At Installation

- Resistance between the anvil ring and ground must be ≤5KΩ. **(A)**
- Confirm >5KΩ between the e-Knifeholder blade and the anvil ring. **(B)**
- If resistance exceeds ≤5K Ω, confirm ≤500 Ω between the e-Knifeholder blade(s) and ground. **(C)**



E-stop Circuit

- This TUV (or UL) listed device is not provided with its own E-stop and may only be installed in a completed system equipped with a compliant E-stop circuit.
- The E-stop circuit gives the operator the ability to shut the entire system off quickly in case of an emergency.
- Upon activation by an E-stop button, power shall also be removed from the system.
- Removing the power from the cabinet creates a zero energy state, category 0, according to the NFPA-79* (controlled stop).
- Upon releasing the E-stop button, power is not delivered until some deliberate action is completed. Restarting of the machine requires operation of the start button.
- Follow local electrical codes to conform with E-stop conditions.
- TUV and UL approved e-Knifeholders have the TUV or UV mark affixed to the back of the knifeholder.

* EN60204-1 (European Union standard)

INSTALLING THE POWER CABINET

Arc flash and shock hazard.
Installation must comply with federal, state and local electrical codes.

Install the cabinet according to the Tidland electrical drawings provided with your unit.

Electrical Ratings

See the label on the e-Knifeholder power cabinet for your model number.

Cabinet Model	EKH5-5S	EKH5-1S	EKH20-1S
Tidland Part No.	708185	706687	708199
Input Rating	100 VAC to 240 VAC	100 VAC to 240 VAC	100 VAC to 240 VAC
	1.65A	1.65A	4.6A
	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase	50 Hz or 60 Hz single-phase
Output Rating	24 VDC to 29 VDC	24 VDC to 29 VDC	24 VDC to 29 VDC
	1A per cable	5A	15A

Commissioning the Power Cabinet

To avoid damage to the e-Knifeholder, never plug in a knifeholder while the power is on.

Before connecting the knifeholders:

1. Turn the cabinet power on. (Turn knob clockwise one-quarter turn.)
2. Verify the voltage at the knifeholder end of each cable connector, according to the electrical drawing (Tidland Drawing No. XXXX-0410).
3. Turn off the power.
4. Connect the knifeholders.
5. Turn the power on again.

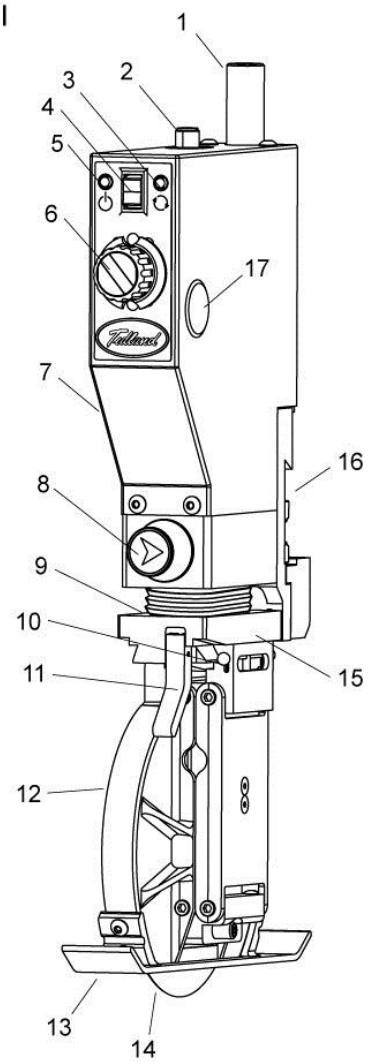
Knifeholder

Complete illustrations and part numbers begin on page 62.

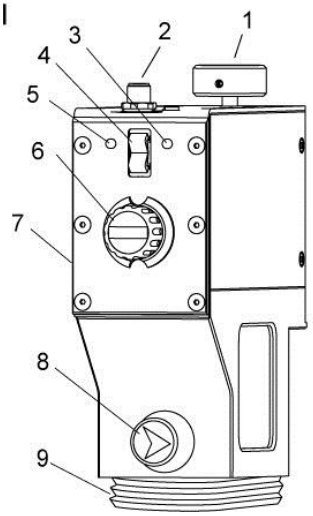
KNIFEHOLDER ORIENTATION

Item	Description
1	Brake Knob
2	Power/Communication Connector
3	Communication LED • Green solid: PC is communicating to knifeholder • OFF: PC is not communicating to knifeholder
4	Jog Switch **Use jog switch with extreme caution. Keep hands clear of knife blades at all times.** With Function Control Knob in Red non-operational position: • Toggle jog switch DOWN: extend the knifeholder • Toggle jog switch UP: retract the knifeholder (Use when positioning knifeholder on guide bar.) • Jog Switch stops knifeholder movement during calibration or down stroke. (You must return the Function Control Knob to RED to initiate movement.
5	Power/Error LED • Green solid: power on/no error • Red blink: calibration error
6	Function Control Knob (page 13) • Yellow: Begins calibration • Red: Retract (non-operation position) • Green: Run (operation position – extends KH)
7	Control Body
8	Cant Key
9	Knifeholder Bellows
10	Safety Lock Pin (not visible in this orientation)
11	Lock/Unlock Lever (shown in LOCKED position)
12	Blade Cartridge
13	Blade Guard Attachment (optional)
14	Knife Blade
15	Control Body to Cartridge Dovetail Interface
16	Guide Bar Mount Assembly (Manual Mount or *Easy* Glider)
17	Knifeholder Address Switch Access Cover (CLII only)

CLASS II



CLASS III



Class III Dovetail and Cartridge, similar to Class II, are not shown.

Function Control Knob

COLOR	POSITION	FUNCTION

YELLOW

Setup
Calibration

Begins the calibration cycle. The calibration cycle will automatically move the blade up before starting.

1) The blade will side engage fully,
2) move down until it just touches the top of the anvil blade,
3) move up 0.030",
4) side disengage to zero point,
5) move down to desired overlap,
6) engage side until it just touches the side of the anvil blade,
7) side disengage to zero point, and then
8) wait for next command.

Use calibration after placing blade near anvil and locking knifeholder to guidebar.

RED

Retract
No operation

Reverses sidestroke movement, then retracts blade cartridge.

- Use when knifeholder is not in operation.
- Use to allow jog button to move knife up/down.
- Use when traversing knifeholder (with blade retracted) to new slit position.

Do not traverse knifeholder when blade is extended.

GREEN

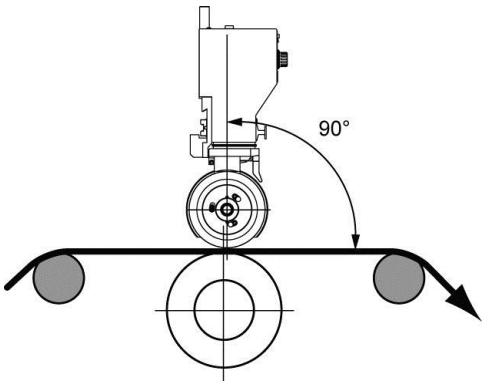
Extend
Operate

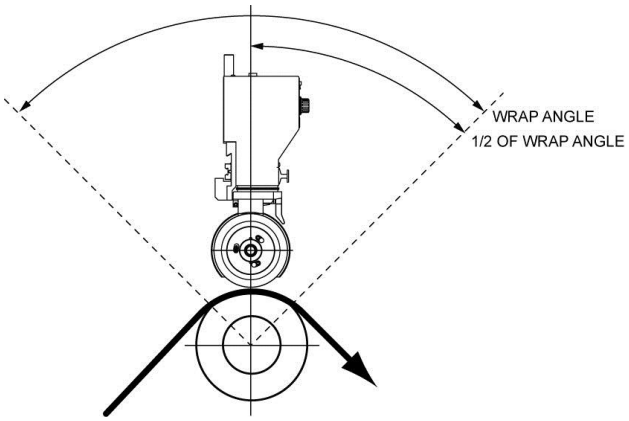
Extends blade cartridge to programmed overlap then moves side stroke to programmed side force.

- Use when **operating** knifeholder.
- Knife may engage based on commanded engage state.

Select Slitting Type

Class II profile shown





TANGENT

- Knifeholder axis is 90° to web path.
- Tangent slitting requires knifeholder setback.

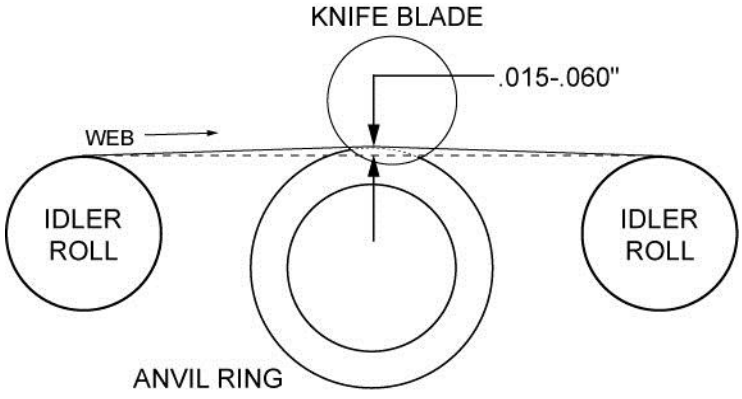
WRAP

- Knifeholder axis bisects the wrap angle.
- Knifeholder setback is not required.

Web Penetration for Tangential Slitting Applications – Recommended

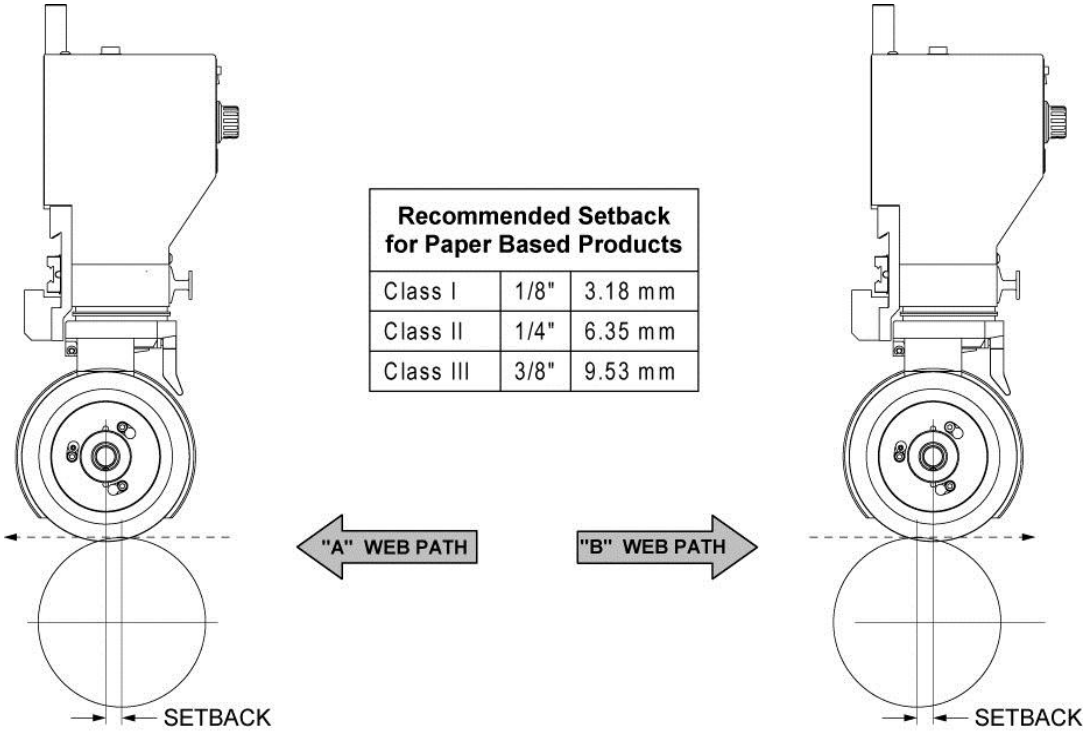
To maximize web stability at the cut point, Tidland recommends web penetration by the anvil ring of .015"-.060". Check this measurement by laying a straight edge across the idler rolls to represent the web. Measure how far the anvil ring "penetrates" the plane created by the straight edge.

Thicker web materials require more penetration, while thinner or sensitive materials may require no penetration. Call Tidland Customer Service for assistance. 1-800-426-1000



Knifeholder Setback – Recommended (For Tangent Slitting Only)

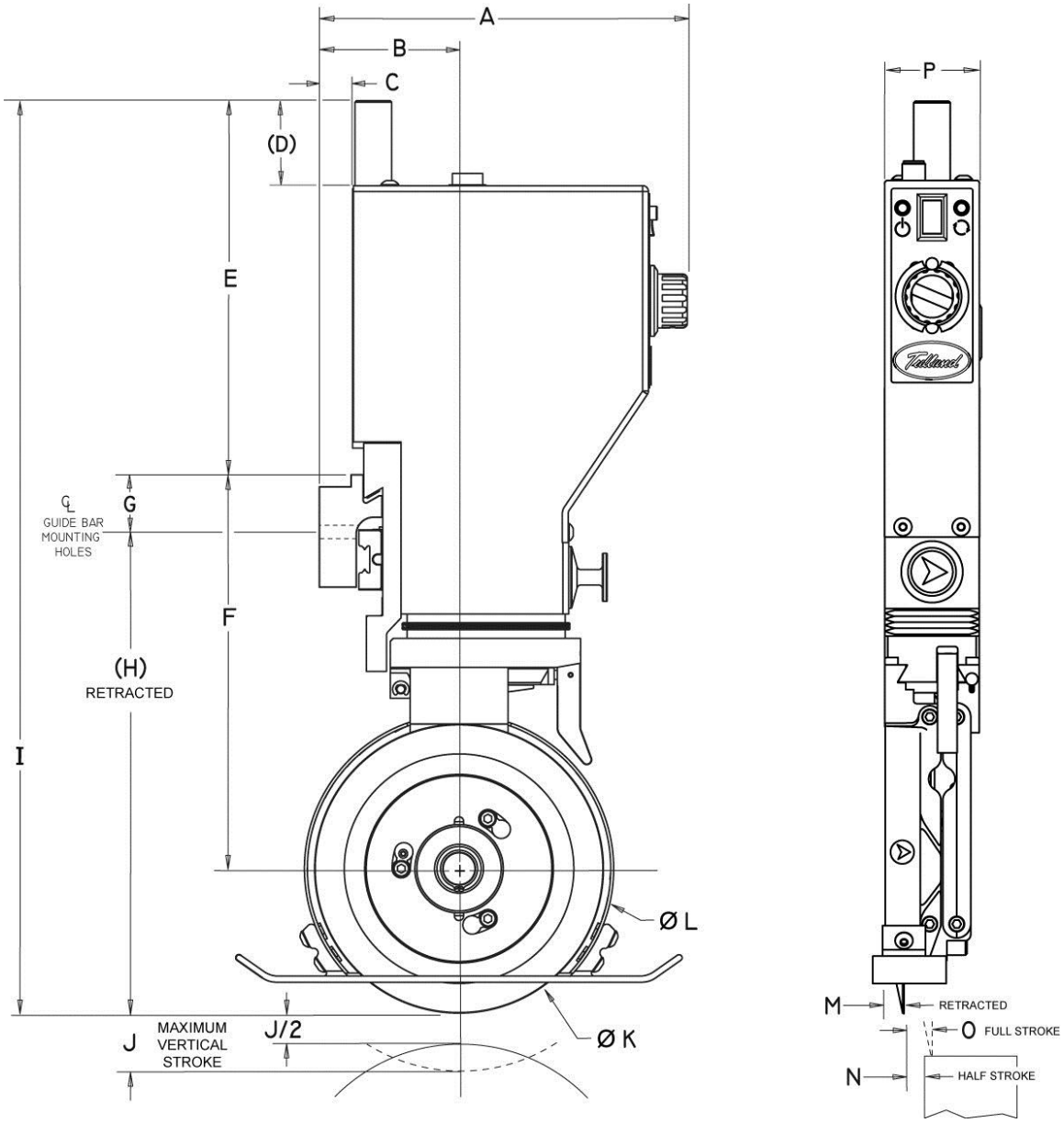
- For best slit result, the web must be in contact with the lower knife ring at the cut point. If the web contacts the top blade ahead of the cut point, the material will tear instead of slitting cleanly.
- Geometry shown is based on medium weight kraft paper. For assistance with other web materials, call Tidland Customer Service, 1-800-426-1000.
- Class II profile shown.



Recommended Setback for Paper Based Products		
Class I	1/8"	3.18 mm
Class II	1/4"	6.35 mm
Class III	3/8"	9.53 mm

Mounting the Guide Bar

Determine Space Requirements



Class II e-Knifeholder is shown in retracted position.

Class II	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Inches	7.62	2.94	0.76	0.75	7.55	8.20	1.27	9.89	18.70	.965	5.91	6.33	0.49	.059	0.13	1.94
Millimeters	193.5	74.7	19.4	19.0	191.9	208.5	32.3	251.2	475.2	24.5	150.1	160.8	12.3	1.5	3.30	49.3
Class III	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
Inches	8.26	3.46	0.63	1.75	5.52	7.82	1.27	11.74	18.53	1.00	7.84	8.35	0.65	0.12	0.25	2.88
Millimeters	209.9	87.9	16.0	44.5	172.5	198.7	32.3	298.3	470.1	25.4	199.2	212.2	16.5	3.0	6.4	73.2

Dimension M is from the edge of the upper control body to the inside of the knife blade.

Note: Dimensions are nominal and represent the average of assembled units. These are not the specifications of individual parts, nor do they reflect manufacturing tolerances.

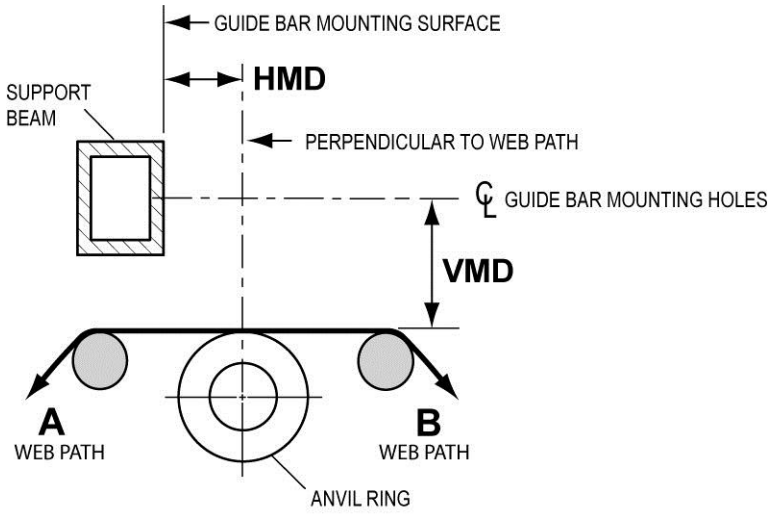
Determine Mounting Dimensions

Vertical Mounting Dimension – VMD

The distance from the centerline of the guide bar mounting holes to the anvil roll or ring O.D. and perpendicular to the web path

Horizontal Mounting Dimension – HMD

The distance from the support beam face (guide bar mounting surface) to the vertical centerline through the center of the anvil ring.



TANGENT SHEAR SHOWN

VMD

Tangent & Wrap Slitting		
Class II	10-3/16"	(258.8 mm)
Class III	12-1/4"	(311.2 mm)

These dimensions reserve approximately 1/2 of blade cartridge stroke for blade regrinding.

HMD

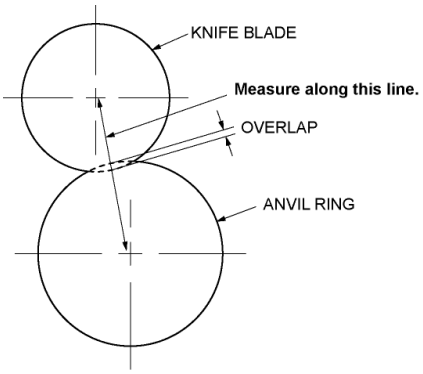
	Tangent Slitting *		Wrap Slitting **
	'A' Web Path	'B' Web Path	'A' or 'B' Web Path
Class II	3-7/32" (81.8 mm)	2-23/32" (69.1 mm)	2-15/16" (74.6 mm)
Class III	3-27/32" (97.6 mm)	3-3/32" (78.6 mm)	3-15/32" (88.1 mm)

* These dimensions will result in setbacks as listed in 'Recommended Setback Distance' on page .

** These dimensions provide no setback.

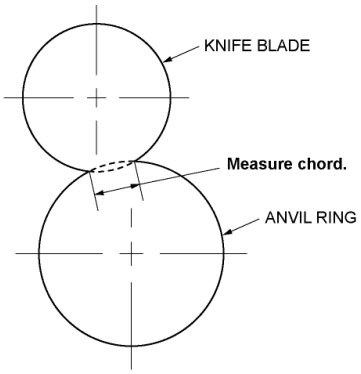
Methods for Measuring Blade Overlap

The e-Knifeholder automatically sets blade overlap. To adjust the blade overlap (p. 81).
This graphic is for reference only.



Method 1

Measure blade overlap directly along the common centerline of the knife blade and anvil ring.

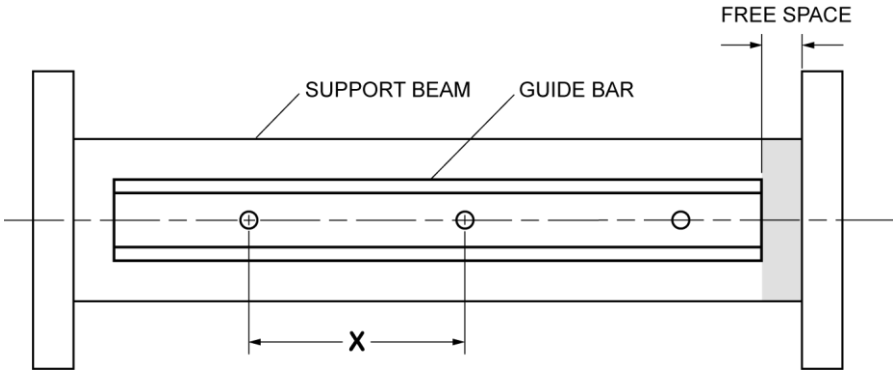


Method 2

Measure the chord of the intersection between the knife blade and anvil ring.

Install Guide Bar on Support Beam

The guide bar must be straight within 0.010" (0.25 mm) on a rigid and vibration-free support.



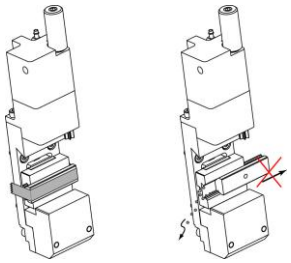
1. Determine the center-to-center distance between the mounting bolt holes (**X**) on the guide bar.
   - Standard pre-drilled dimension (**X**) is 12" (304.80 mm).
   - Drill and tap support beam for pre-drilled guide bar: 3/8"-16NC holes

Before transferring dimension (X) onto the support beam, make sure there will be enough free space at one end of the beam for knifeholder installation and removal once the guide bar is mounted.

	Recommended Free Space (minimum)
Class II	3" (76.2mm)
Class III	4" (101.6mm)

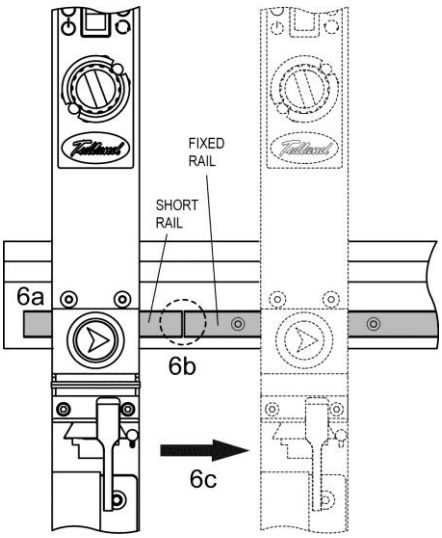
Mount Knifeholder to Guide Bar

Easy Glider Linear Bearing



- Do not remove the factory-installed short rail section from the linear rail.
- This rail section must be used to install the knifeholder onto the guide bar rail.
- Failure to use this rail section when installing the knifeholder may result in bearing damage and **void bearing warranty.**

Safety Recommendation
Remove blade cartridge from knifeholder (p. 22).

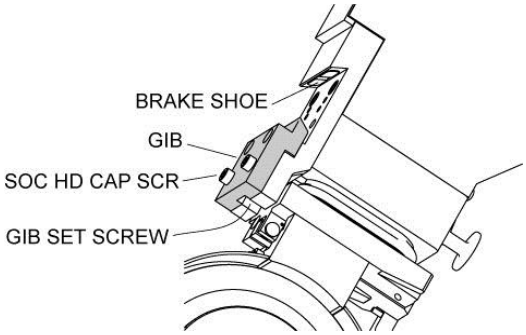


Class II shown

1. Choose at which the end of the guide bar the knifeholders will be mounted.
2. At the mounting end only, locate and remove the #10-32 end stop screw on the face of the guide bar.
3. **Do not remove the short rail from the knifeholder bearing.**
4. Turn the brake knob counterclockwise to unlock.
5. Push the brake shoe up into the back plate if protruding.
6. Install the knifeholder:
    a. Hold the knifeholder and short rail section together. Carefully place the rail section into the keyway on the guide bar.
    b. Align the short rail section with the fixed bearing rail on the guide bar.
    c. Slide the knifeholder onto fixed bearing rail.
7. Remove short section of bearing rail from the guide bar; keep it for future maintenance and knifeholder removal.
8. Repeat Steps 2-8 until all knifeholders are installed.
9. After all knifeholders are installed, reinstall the #10-32 socket head cap screws in the end stop.
10. Reinstall blade cartridges on knifeholders (p. 22).
11. Turn the function control knob to red (retract) position on all knifeholders.

Manual Mount

1. Make sure the blade cartridge is retracted.
2. Turn the brake knob (on top of the control body) counterclockwise enough to allow the brake shoe to be manually retracted into the mount. (Push the brake shoe up into mount if extended out.)
3. Align the mount with the end of the guide bar and slide the knifeholder onto the guide bar.
4. Turn the brake knob clockwise to secure the knifeholder in the desired position.



Adjusting the Gib to Keep Knifeholder Perpendicular to Guide Bar

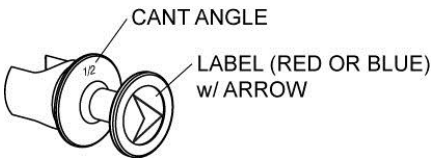
1. Loosen the two gib socket head cap screws. (4 mm hex)
2. Tighten or loosen the gib set screw to achieve a perpendicular fit: ¼ turn per adjustment. (2 mm hex)
3. Tighten the two gib socket head cap screws: torque to 4.3 ft·lbs (5.83 Nm).
4. Gib should be tight enough to maintain perpendicular fit when locked to the guide bar, and loose enough to provide smooth traverse.

Connect the power/communication cable to knifeholder before turning on system power.

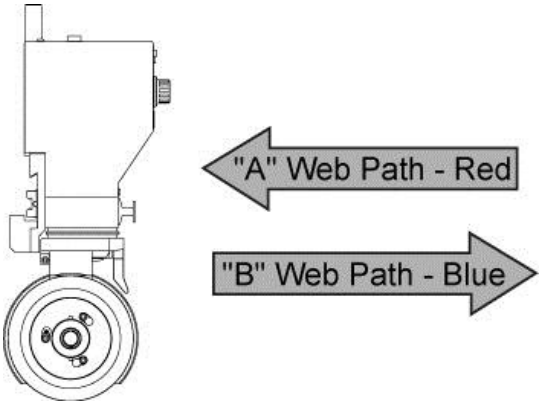
Cant Key

Selection

Cant Angle Options: **0°, 0.25°, 0.5°, or 1.0°**
The angle is engraved in the key.



- The cant key label color, red or blue, indicates the web path direction as determined at time of sale.
- If the web path needs to be reversed at any time, Tidland recommends replacing the cant key with one of the correct color.
- The arrow on the cant key points to the nip point. (See page 21.)



Class II profile shown.

Orientation

The arrow on the cant key label should:
- point to the nip point (blade contact side) of the anvil ring.
- point in the same direction as the arrow on the blade cartridge.

Arrows pointing in opposite directions indicate that:
- the nip point will not be closed, resulting in poor slit quality, and
- the cant key orientation needs to be reversed, **or**
- the cartridge orientation must be changed.

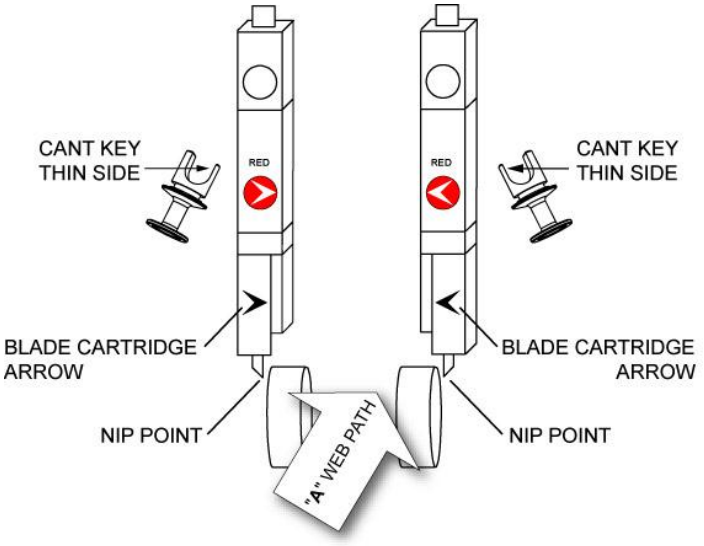
To change cant key orientation, pull the key all the way out of the control body, rotate it 180° and reinstall, pushing it firmly into the control body.

To install a new cant key, pull the old key out of the control body and replace it with the new key. Make sure the cant key arrow points in the same direction as the blade cartridge arrow.

Cant Key (*continued*)

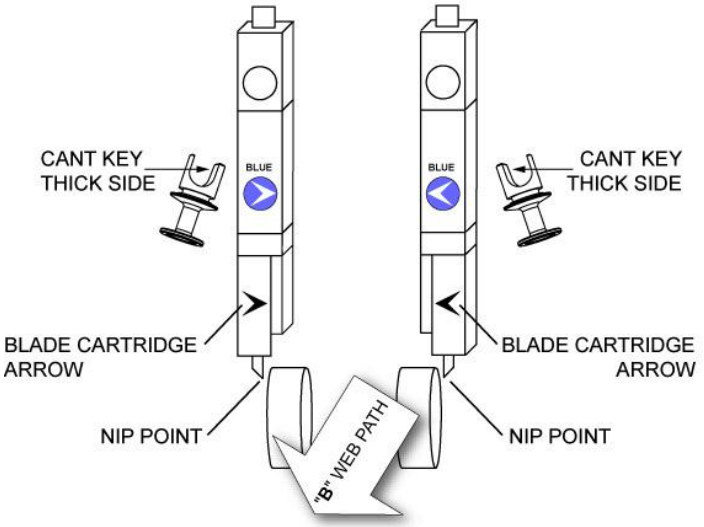
"A" Web Path

- Web moves from control side of knifeholder toward the guide bar mount.
- Cant key label is RED.
- Cant key arrow points toward the THIN side of the cant key.
- Blade cartridge arrow points to the nip point (contact side of anvil ring.)



"B" Web Path

- Web moves from the guide bar mount toward the control side of knifeholder.
- Cant key label is BLUE.
- Cant key arrow points toward the THICK side of the cant key.
- Blade cartridge arrow points to the nip point (contact side of anvil ring.)



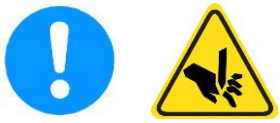
Changing the Cant Key O-ring

The cant key must remain tight in the knifeholder body. If the cant key becomes loose in the body or if cracks in the o-ring are visible, replace the o-ring.

1. Pull the cant key straight out from the control body.
2. Remove o-ring from the cant key.
   Caution! Do not damage o-ring groove edges when removing o-ring.
3. Lubricate the new o-ring and the cant key o-ring pocket. **Use only *Parker Super O-Lube.***
4. Install the new o-ring in the cant key o-ring groove.
5. Push the cant key straight into the knifeholder body.
   See illustration above for correct orientation.

Blade Cartridge

Blade cartridge instructions are the same for Class II and III. Class II shown here.



Before removing the blade cartridge, read instructions for using the optional blade cartridge transport tool (p. 31).

Removing the Cartridge

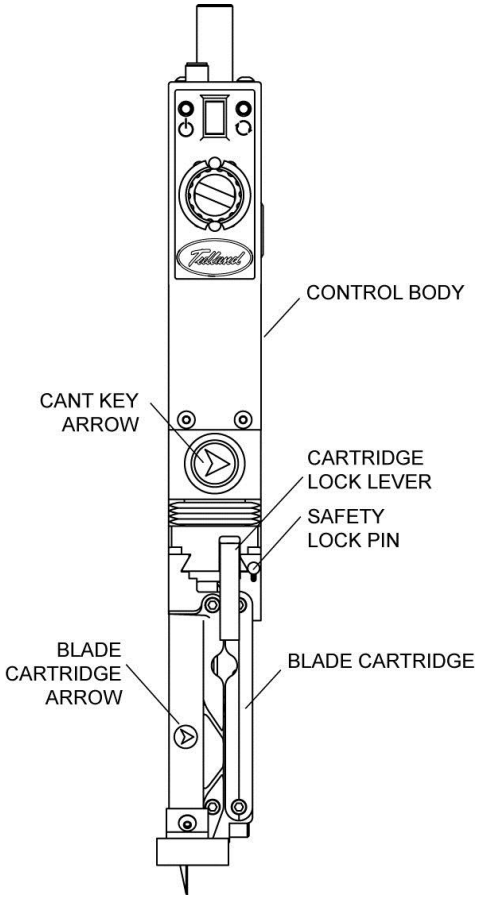
1. Turn function control knob to red (retract) position.
2. Install the cartridge transport tool (p. 31).
3. Pull up on the dovetail lock lever to unlock the blade cartridge.
4. Press and hold down the safety lock pin.
5. Using the cartridge transport tool, pull the blade cartridge toward you to slide it off the control body.
6. Transport the cartridge to the maintenance area before removing the tool.

Reversing the Cartridge

1. At the maintenance area, remove the tool from the cartridge.
2. Turn the cartridge 180° and reinstall the removal tool.
3. At the knifeholder control body, you must pull out the cant key, rotate it 180° and reinstall.

Reinstalling the Cartridge

1. Slide the blade cartridge onto the control body.
2. The safety lock pin will 'snap' in place when the blade cartridge is in the correct position.
3. Press down on the dovetail lock lever to lock the blade cartridge to the control body.
4. Remove the cartridge transport tool (if used).



IMPORTANT!

The arrow on the cant key must point in the same direction as the arrow on the blade cartridge. If it does not:

1. Confirm that you have the correct key for your web path direction.
2. Pull key out of the knifeholder body and rotate it 180°.
3. Push it firmly back into the control body with the arrow pointing in the appropriate direction.

(*Cant Key*, p. 20)

Knifeholder Power and Communication

If not using a PC supplied by Tidland, install the software that was supplied on the CD with your e-Knifeholders. This will ensure that you have the most current version of the software on your computer.

Turn power supply off **before plugging in or unplugging** the power cable from the knifeholder.

Disconnecting the power cable while the power is still on will result in a loss of communication between the user interface and the e-Knifeholder and can cause permanent damage to the knifeholder.

Power and communication are integrated and supplied through a power cable (Tidland P/N 685104), typically shipped with each e-Knifeholder assembly.

If your configuration varies from the standard installation, use the required mating connector: Turck, Inc. Eurofast M12, 8-pole, appliance outlet cable assembly, such as Model RK or WK series, rated 75V, 2A.

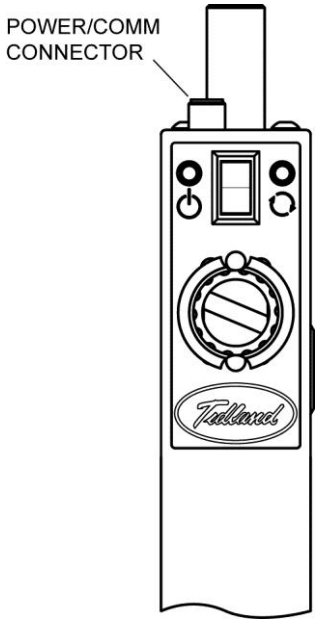
It is not possible to plug the cables in backward or in the wrong direction. Each connector is keyed for correct orientation.

Plugging in a Knifeholder

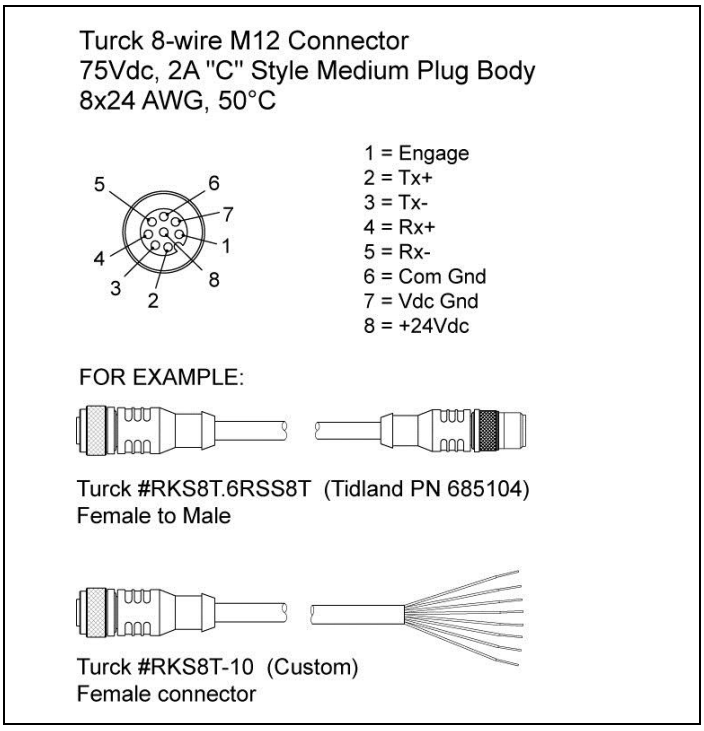
1. Turn off system power.
2. Connect the male end of the power cable to the beam or wiring duct, if equipped, and tighten the connector locking ring.
3. Connect the female end of the power cable to the knifeholder at the power/communication connector and tighten the connector locking ring.
4. Apply system power.

Unplugging a Knifeholder

1. Turn off system power.
2. At the knifeholder, loosen the locking ring and pull out the power cable.



Class II shown



External Engage Signal

Note: Refer to the electrical drawings at your installation for the wiring of the external engage signal.

Each knifeholder receives an external engage signal that overrides the PC user interface.

When the signal is ON, the user interface can engage or disengage any knifeholder.

When the signal is OFF, the knifeholders are completely disabled.

When switching from ON to OFF, the knifeholders will retract.

External Engage is ON

Set to…	the Function Control Knob will…	and the Jog Switch will…
Green	Extend the knifeholder	Stop KH movement when toggled up or down
Green (during calibration)	Extend the knifeholder when calibration sequence is complete	Stop calibration sequence or any KH movement.
Red	Retract the knifeholder	Retract KH when toggled up OR extend KH when toggled down, and side move knife blade to half stroke
Yellow	Begin calibration	Stop calibration when toggled up or down

External Engage is OFF

Set to…	the Function Control Knob will…	and the Jog Switch will…
Green	Do nothing	Do nothing
Red	Do nothing	Do nothing
Yellow	Do nothing	Do nothing

Knifeholder Setup and Calibration

During operation, keep the e-Knifeholder cartridge-to-dovetail interface clean (see page 26). Heavy dust build-up can result in the loss of sidestroke.

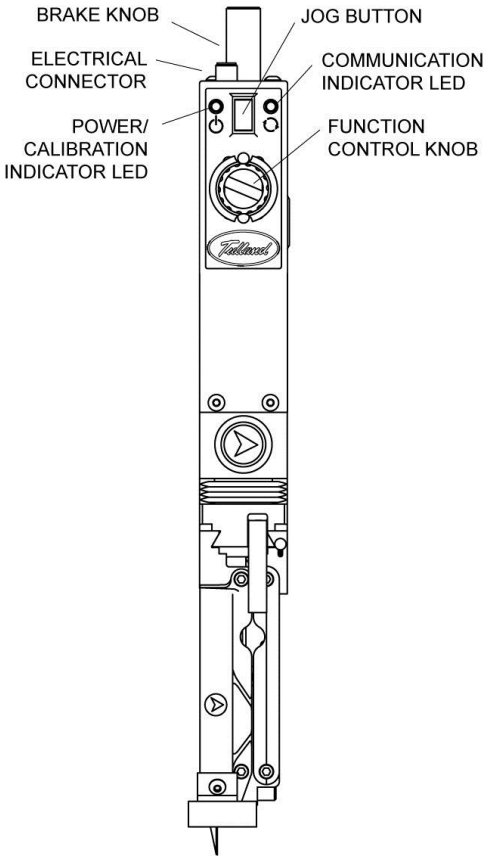
Warning – danger due to cutting

Do not put hands between the knife blade and the web material at any time during operation. Severe bodily injury may occur.

Warning – danger due to crushing

Keeps hands away from all moving knifeholder parts during blade cartridge retraction. Severe bodily injury may occur.

Class II shown here.



Ensure that:

- **anvil rings are in a pre-selected slit position.**
- **blade cartridge is locked to control body.**
- **power cable is attached and power is on.**
- **you have verified continuity between system components (p. 10).**

1. Turn the function control knob to the red (retract) position.
2. Loosen the brake knob. The knifeholder is ready to move.
3. Manually slide the knifeholder along the guide bar to place knife blade close to the anvil at the new slit position.

   Caution! Ensure that knife blade is not directly over the anvil ring in order to prevent damage by collision when blade cartridge is extended in Step 4.

4. Press the jog button to extend the blade down until it is overlapping the anvil by at least .005" (.13 mm).
5. Manually slide the knifeholder along the guide bar until the knife blade and the anvil ring touch.
6. Tighten the brake knob to lock the knifeholder to the guide bar.
7. Turn the function control knob to the yellow (setup) position to begin knifeholder calibration process.
   Note: Press the jog button if you need to stop calibration. To resume calibration, go back to Step 1.
8. Turn the function control knob to the green (run) position. If the external engage signal is on, the knife will engage to the programmed overlap and side force; otherwise it will disengage. (See page 24.)
9. When all knifeholders have begun calibrating and are set to the green (engage) position, check each knifeholder to ensure that calibration was successful. If the power/calibration LED is blinking red, repeat Steps 1-8.

If there is no knifeholder movement, or if the unit does not calibrate properly, see Troubleshooting on page 73.

If the knifeholder is functioning, but there is no sidestroke, see page 26.

Sidestroke Lever and Actuator Components

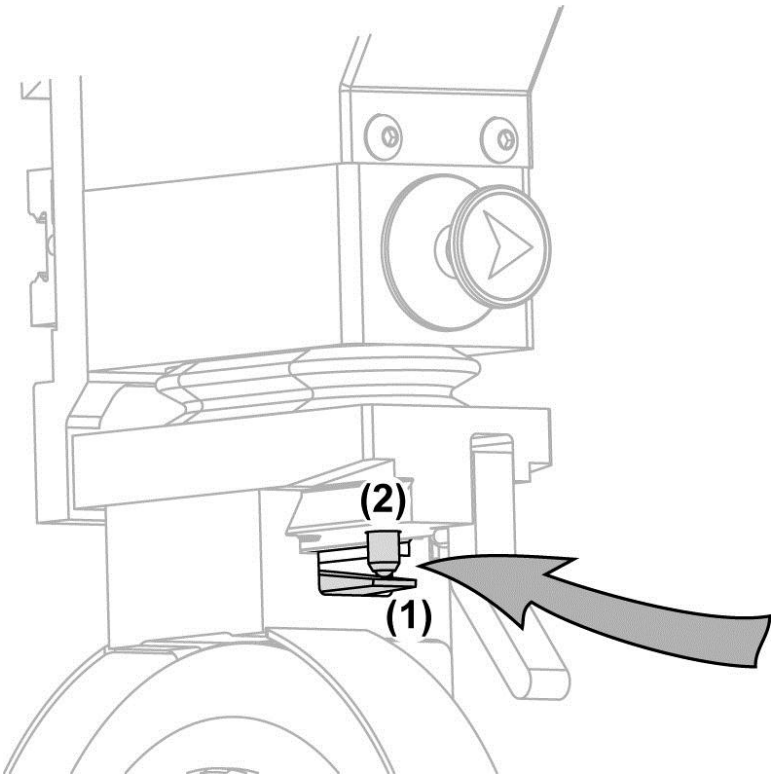
During operation, the sidestroke lever **(1)** is activated by the sidestroke actuator **(2)** located at the cartridge-to-dovetail interface. If these components become clogged with dust and debris, the actuator can become stuck, resulting in loss of sidestroke.

Check this component interface regularly and keep it free from dust and debris build-up. Use compressed air to blow dust out through the cavity between the control body and the blade cartridge dovetail.

Cleaning while the e-Knifeholder is in operation

In high dust level environments, you may need to clean the cavity **before** disengaging the blade from the anvil in order to prevent the sidestroke actuator from sticking.

To clean and lubricate during regular preventive maintenance, see page 49.



Repair options if the actuator is stuck:

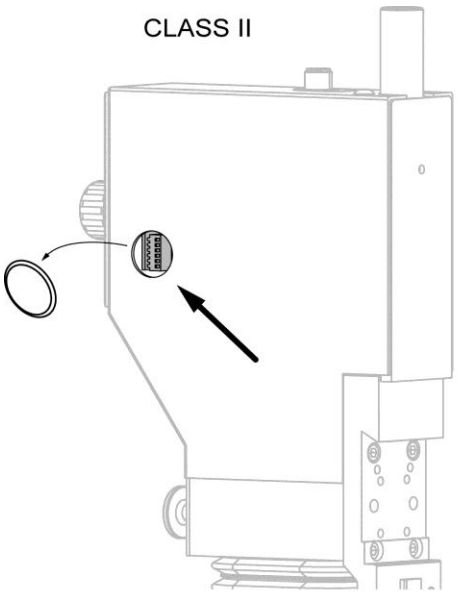
Return the unit to Tidland, or,
Call Tidland for assistance with "Maintenance Mode".

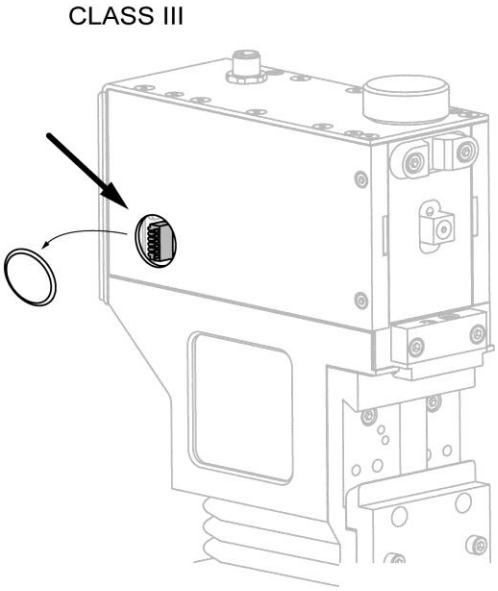
Knifeholder Address

- When installing a replacement knifeholder, you must set the address to match that of the knifeholder being replaced.
- When you add or remove a knifeholder, you must also reconfigure the beam.(p. 86).

Accessing the Address Switch

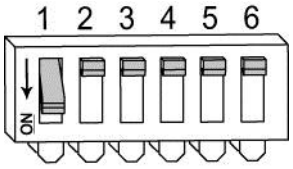
Use a small flat blade screwdriver to carefully pry off the hole plug on the side of the e-Knifeholder.





Setting the Address

1. With a small flat blade screwdriver, carefully position the switches OFF or ON to set the address.
2. Class II: Reinstall the plug.
   Class III: Reinstall the side cover.
3. Install the knifeholder on the guide bar (p. 19) and resume operation (p. 25).



ON = 1 OFF = 0

	1	2	3	4	5	6
1	1	1	1	1	1	1
2	0	1	1	1	1	1
3	1	0	1	1	1	1
4	0	0	1	1	1	1
5	1	1	0	1	1	1
6	0	1	0	1	1	1
7	1	0	0	1	1	1
8	0	0	0	1	1	1
9	1	1	1	0	1	1
10	0	1	1	0	1	1
11	1	0	1	0	1	1
12	0	0	1	0	1	1
13	1	1	0	0	1	1
14	0	1	0	0	1	1
15	1	0	0	0	1	1
16	0	0	0	0	1	1
17	1	1	1	1	0	1
18	0	1	1	1	0	1
19	1	0	1	1	0	1
20	0	0	1	1	0	1
21	1	1	0	1	0	1
22	0	1	0	1	0	1
23	1	0	0	1	0	1
24	0	0	0	1	0	1
25	1	1	1	0	0	1
26	0	1	1	0	0	1
27	1	0	1	0	0	1
28	0	0	1	0	0	1
29	1	1	0	0	0	1
30	0	1	0	0	0	1
31	1	0	0	0	0	1
32	0	0	0	0	0	1

	1	2	3	4	5	6
33	1	1	1	1	1	0
34	0	1	1	1	1	0
35	1	0	1	1	1	0
36	0	0	1	1	1	0
37	1	1	0	1	1	0
38	0	1	0	1	1	0
39	1	0	0	1	1	0
40	0	0	0	1	1	0
41	1	1	1	0	1	0
42	0	1	1	0	1	0
43	1	0	1	0	1	0
44	0	0	1	0	1	0
45	1	1	0	0	1	0
46	0	1	0	0	1	0
47	1	0	0	0	1	0
48	0	0	0	0	1	0
49	1	1	1	1	0	0
50	0	1	1	1	0	0
51	1	0	1	1	0	0
52	0	0	1	1	0	0
53	1	1	0	1	0	0
54	0	1	0	1	0	0
55	1	0	0	1	0	0
56	0	0	0	1	0	0
57	1	1	1	0	0	0
58	0	1	1	0	0	0
59	1	0	1	0	0	0
60	0	0	1	0	0	0
61	1	1	0	0	0	0
62	0	1	0	0	0	0
63	1	0	0	0	0	0
64	0	0	0	0	0	0

Preventive Maintenance

WARNING!
Hand hazard.
Knife blades are sharp.
Use only recommended tools when handling knife blades.

- This recommended maintenance schedule is dependent upon machine use and environment.
- Keep anvil rings and knifeholder blades clean and balanced.
- Do not use oil lubricants in knifeholder. Oil lubricants may cause the knifeholder to function improperly. Use only those lubricants recommended in this publication.

Daily
- Keep all knifeholders clean of debris.
- Calibrate the knifeholder whenever it is moved or a blade is changed.
- Note: DO NOT IMMERSE knifeholders in solvents. Wipe the outer surfaces with a clean, dry rag.

Weekly
- Blow down the blade cartridge to remove dust build up.
- Check electrical cable to the knifeholders for wear or cracks.
- Inspect control body dovetail assembly and remove all dust and debris.

Monthly
- Check adjustment of gib to guide bar for minimal clearance between knifeholder mount and guide bar.
- Clean all surfaces of the control body and blade cartridge.
- Clean the cartridge-to-knifeholder interface parts. See page 36.
- Inspect bellows for tears around dovetail mount. Replace if necessary.
- Inspect the power supply for proper voltage: +24vDC
- Check the resistance between the cartridge dovetail and the knife blade. See page 37.

Bi-Yearly
- Clean and inspect blade cartridge bearings for looseness.
- Remove cant key and inspect for excessive wear. Replace if necessary.
- Check cant key o-ring for damage. Replace if necessary.
- As needed, lubricate at points indicated on page 61.

Guide Bar
- Periodically wipe the dovetail guide bar clean and lubricate with silicone dry film lubrication.
- Tidland Corporation recommends using *Dow Corning Molykote® 557 Silicone Dry Film Lubrication* to ensure smooth knifeholder movement.

Changing the Cant Key

The cant key must remain tight in the knifeholder body. If the cant key becomes loose in the body or if cracks in the o-ring are visible, replace the o-ring.

1. Remove cant key from the knifeholder (p.20).
2. Remove o-ring from the cant key. **Note:** Do not damage o-ring groove edges when removing o-ring.
3. Lubricate the new o-ring and the cant key o-ring groove. Use *Parker Super O-Lube*.
4. Install the new o-ring in the cant key o-ring groove.
5. Push the cant key straight into the knifeholder body.
   Follow arrow orientation as described in *Cant Key Orientation* (p. 20) **or *Web Path*** (p. 21)

Servicing the e-Knifeholder Power Cabinet

Danger
Arc flash and shock hazard.
Service to be performed by qualified personnel only.
Disconnect power before servicing the cabinet.

Replacing a Fuse in the Cabinet

For e-Knifeholder fuses, see page 39.

CAUTION	To reduce the risk of fire, replace fuses only with the same type as indicated for your cabinet model.		
Cabinet Model Tidland Part No.	EKH20-1S 708199	EKH5-5S 708185	EKH5-1S 706687
Input Fuse Class J, 600V	F10, 10A	F10, 3A	F10, 3A
Output Fuse(s) 3AG Time Delay, 250V	F1, 15A F2, 1A	F1-F6, 1A	F1, 5A F2, 1A

Replacing the Power Supply

Replace power supply with same make and model only. Contact Tidland for pricing.

Using the Blade Cartridge Transport Tool

The blade cartridge transport tool is designed for safe handling of the blade cartridge to and from the work bench. Operators can safely remove the cartridge from a knifeholder installed on the guide bar and transport it to another area for maintenance. The tool attaches to the orange safety guard installed on the knifeholder, preventing contact with the sharp blade edge.

Before removing the cartridge:

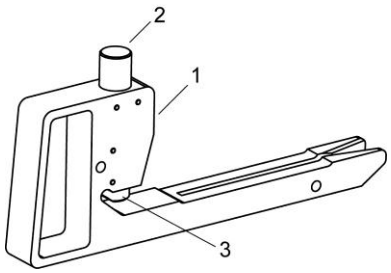
To prevent accidental movement of the e-Knifeholder, turn the function control knob to the RED position, or

Follow your company lockout/tagout procedure.

The knifeholder must be in the retracted position (RED) before installing the transport tool.

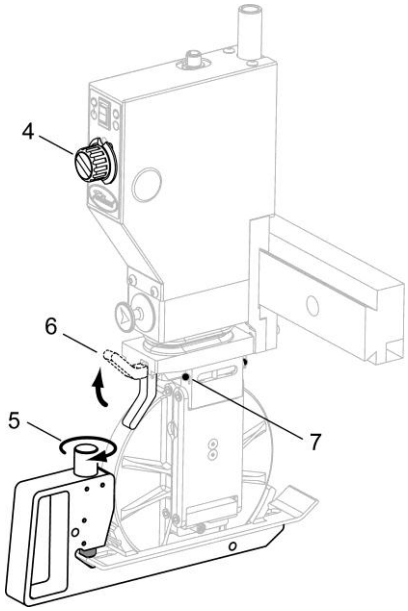
The transport tool **(1)** is secured to the knifeholder blade guard by a lock screw **(2)** and plastic clamp **(3)**.

Turn the lock screw counterclockwise to loosen before installing.



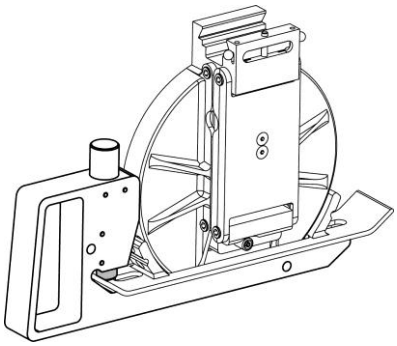
Installing the Transport Tool

1. Turn the knifeholder function control knob **(4)** to the red (retract) position.
2. Place the tool underneath the blade cartridge so that the knife blade seats in the tool slot.
3. Turn the lock knob **(5)** clockwise to tighten the lock screw hard against the blade guard safety attachment.



Removing the Cartridge

7. Pull up on the dovetail lock lever **(6)** to unlock the blade cartridge.
8. Press and hold down the safety lock pin **(7).**
9. Using the cartridge transport tool, pull the blade cartridge toward you to slide it off the control body.
10. Transport the cartridge to the maintenance area before removing the tool.



To reverse or reinstall the cartridge, see page 22.

Removing Knifeholder from Guide Bar

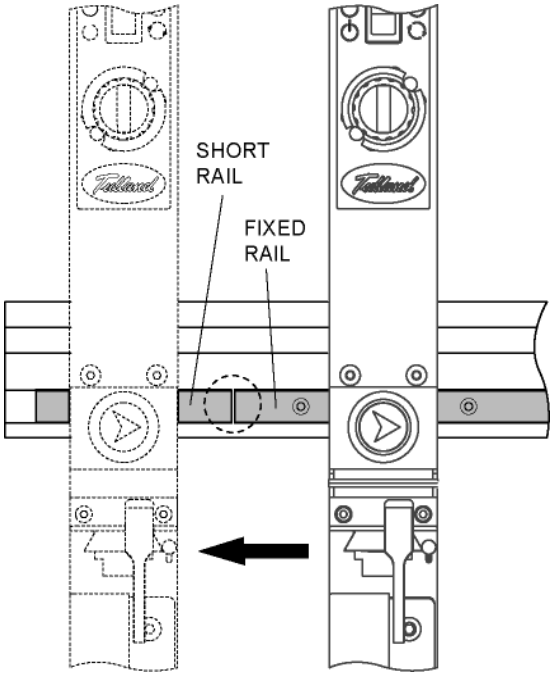
Warning – danger due to cutting or crushing

Before removing the e-Knifeholder from the guide bar:

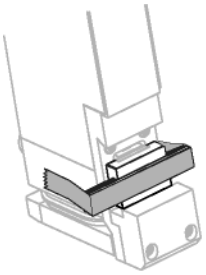
- Retract the blade cartridge.
- Turn off power to the e-Knifeholder.
- Disconnect the power/communication cable from the e-Knifeholder.
- Remove the blade cartridge (p. 31).

Easy Glider Linear Bearing Mount

Class II shown here



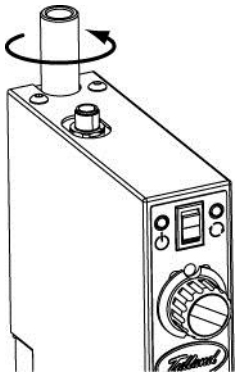
1. Choose at which end of the guide bar the knifeholder will be removed; move the knifeholder just to the end of the fixed rail on the guide bar.
2. Locate and remove the #10-32 screw from the end stop on the face of the guide bar.
3. In the space at the end of the guide bar, align the short piece of rail (received with each knifeholder bearing mount) with the fixed rail and transfer the knifeholder from the fixed rail to the short rail.
4. Hold the knifeholder and the short rail together and carefully remove them from the guide bar. **Do not remove the short rail from the knifeholder bearing mount.** You will need it to reinstall the knifeholder on the guide bar.



★**TIP:**
Secure the short rail to the linear bearing with a small piece of tape to retain the bearing balls during maintenance. You will need the short rail to reinstall the knifeholder on the guide bar.

Manual Mount

1. Turn the brake knob on top of the control body counterclockwise to unlock.
2. Locate and remove the #10-32 screw from the end stop on the face of the guide bar.
3. In the space at the end of the guide bar, align the short piece of rail (received with each knifeholder bearing mount) with the fixed rail and transfer the knifeholder from the fixed rail to the short rail.
4. Hold the knifeholder and the short rail together and carefully remove them from the guide bar. **Do not remove the short rail from the knifeholder bearing mount.** You will need it to reinstall the knifeholder on the guide bar.



Class II shown here.

Knife Blades

The problem-free and safe operation of the Tidland e-Knifeholder is reliant on proper transportation and storage, expert installation and commissioning and on use in accordance with the intended purpose.

Only persons who are familiar with the installation, commissioning, operation and maintenance of the e-Knifeholder and who possess the necessary qualifications for their activities may work on the e-Knifeholder.

WARNING!
Hand hazard.
Knife blades are sharp.
Maintenance may be performed only by qualified personnel and only in a designated area.

Minimum Blade Diameter

For safety, Tidland recommends changing knife blades when the minimum blade diameter for CE compliance is reached. The requirement is <6 mm gap from blade edge to the inside edge face of the cartridge guard.

	Min. Blade Diameter
Class II	145.58 mm (5.731")
Class III	196.96 mm (7.754")

Changing a Knife Blade

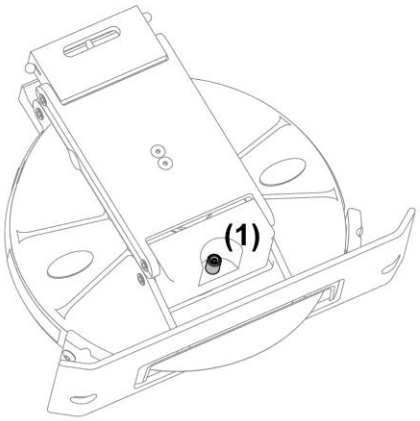
Removing the Blade

For safety and ease during blade maintenance, Tidland recommends securing the cartridge with a bench fixture while changing the blade.*

1. Use the cartridge transport tool to remove the cartridge from the knifeholderbefore beginning disassembly (p. 22). It is not necessary to remove the blade guard or the blade guard attachment.
2. At the maintenance area, install cartridge on a bench fixture for stability and remove the cartridge transport tool.
3. Press and hold the blade lock pin **(1)** and rotate the blade hub until it stops. (The pin will be on the underside of the cartridge when mounted in fixture.)
4. Use a 4 mm hex wrench to loosen the three blade clamp screws **(2)**. It is not necessary to remove the screws.
5. Still pressing the blade lock pin, rotate the blade clamp **(3)** counterclockwise and slide it off the blade hub when the clearance holes are aligned with the blade clamp screw heads.
6. Remove the knife blade **(4)** from the blade hub.

WARNING!
Hand hazard.
Knife blades are sharp.Maintenance may be performed only by qualified personnel and only in a designated area.

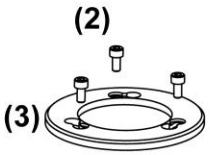
For added protection, Tidland recommends the use of stainless steel mesh gloves when handling knife blades.

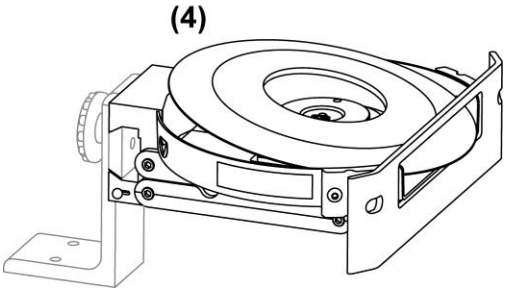


Reinstalling the Blade

For safety and ease during blade maintenance, Tidland recommends securing the cartridge with a bench fixture while changing the blade.*

1. Clean the blade hub surface where the blade mounts to assure correct fit of the blade and to help prevent blade runout (wobble).
2. Replace the knife blade with the slitting edge toward the strut (the inside back face of the cartridge).
3. Replace the blade clamp onto the blade hub. Press and hold the blade lock pin and rotate the blade clamp clockwise until the counterbored areas of the clearance holes are under the blade clamp screw heads.
4. Tighten the three blade clamp screws to 45 in·lbs (5.10 Nm)
5. Attach the cartridge transport tool and remove the cartridge from the bench fixture.
6. Return the cartridge to the operating area and reinstall the cartridge on the knifeholder (p. 22).





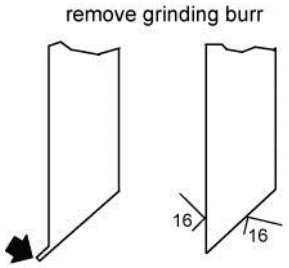
***Tidland Bench Fixture (modular)**

Fixture base	733657
Class II dovetail	731409
Class III dovetail	731776

Blade Grinding and Finishing

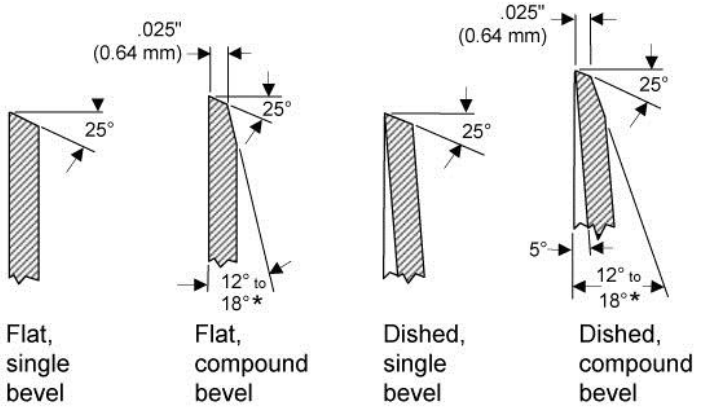
See minimum blade diameter specifications on page 33.

- Correct blade sharpness is essential for shear and crush slitting operations.
- To reduce chipping and rapid dulling of blades, it is important to remove burred edges.
- Grind the blade edge as smooth as possible to avoid dust formation during the slitting process.
- **Before putting the blade into operation**, install the blade and set up the knifeholder at the anvil ring. Manually rotate the blade against the anvil in the reverse direction for a few revolutions. This will help deburr the blade after grinding and provide a smooth slitting edge.



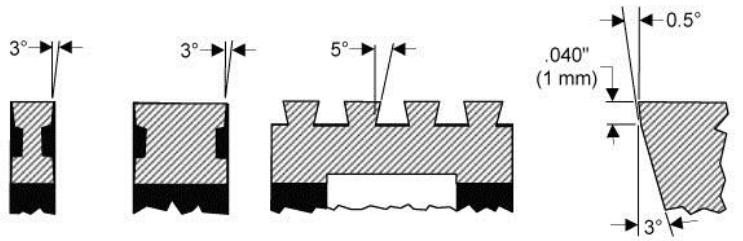
Suggested Blade Grinding Procedure			
Step	**Procedure**	**Wet/Dry**	**Grit/Hardware**
1	If required, grind to remove chips, restore roundness, etc.	Wet	46/60 med./soft
2	Rough grind blade edge	Wet	100 medium
3	Finish grind blade edge	Wet	180 med./hard
4	Deburr	Dry (hand)	Oilstone

Knife Blades – Shear



* 12° for blades Ø150 mm and smaller
18° for blades Ø180 mm and larger

Anvil Rings – Shear



Cartridge-to-Knifeholder Interface

For proper e-Knifeholder operation, keep the interface clean between the cartridge and the knifeholder control body dovetail.

WARNING! Hand hazard.

Knife blades are sharp. Maintenance may be performed only by qualified personnel and only in a designated area. For added protection, Tidland recommends the use of stainless steel mesh gloves when handling knife blades.

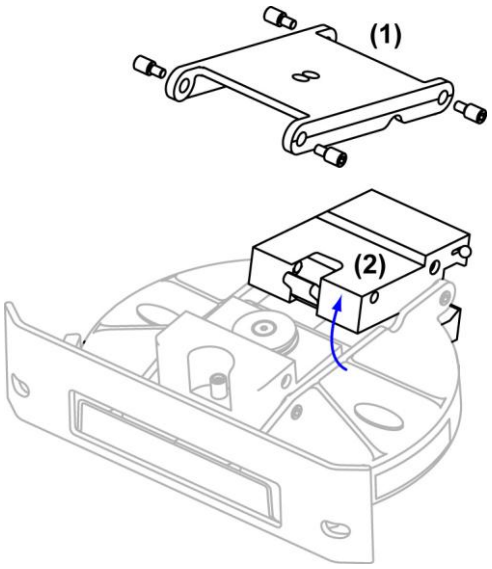
Remove the cartridge from the control body.

- Clean the sidestroke actuator parts.
- Clean the sidestroke lever on the knifeholder dovetail assembly.
- Measure the resistance between the cartridge dovetail assembly and the knife blade.

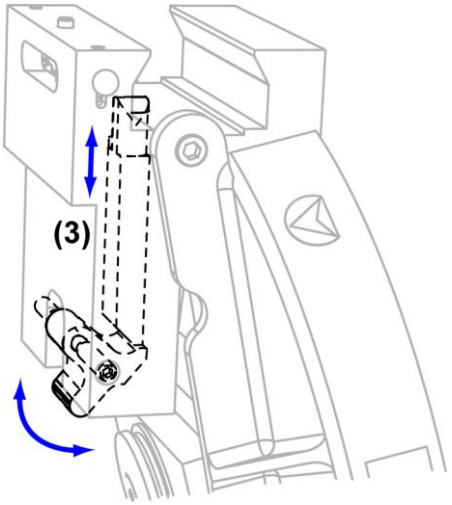
Cleaning the Sidestroke Actuator Parts

Clean as needed depending on the application and dust levels of your operation.

1. Using 4 mm hex drive, remove the outer cartridge strut **(1)**.
2. Rotate the dovetail assembly **(2)** up and use compressed air to blow dust and debris from the moving parts.



3. Manually actuate the sidestroke key and the cam **(3)** parts, checking for free and smooth movement. If parts are sticking, call Tidland Customer Service for assistance.

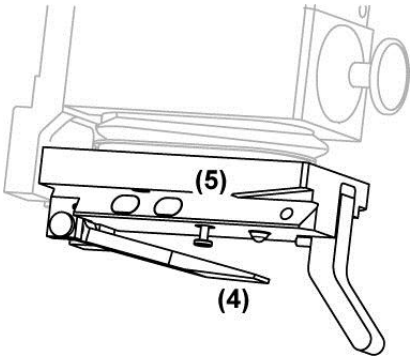


Cartridge-to-Knifeholder Interface
(continued)

Cleaning the Sidestroke Lever on the e-Knifeholder Control Body

Regular cleaning recommended

Pull the sidestroke lever **(4)** away from the dovetail block **(5)** and wipe all of the components clean, removing all dust and debris build-up.
Do not use solvents, which can cause dust to accumulate.

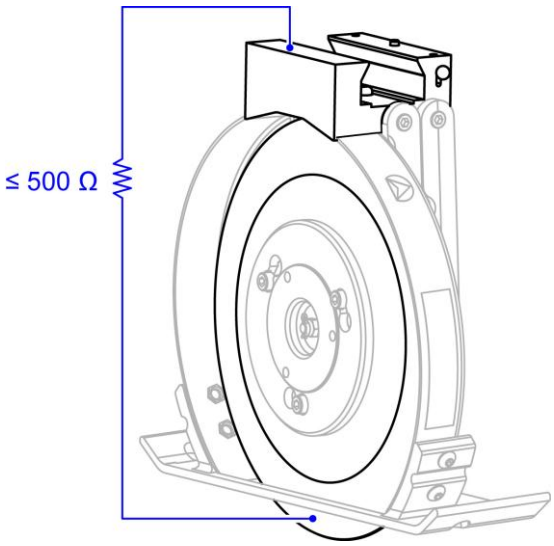


Measuring Resistance

After cleaning the knifeholder dovetail-to-cartridge interface, use an ohmmeter to measure for ≤500 Ω between the top of the cartridge dovetail and a point on the knife blade.
Note: The dovetail point must be a non-anodized surface, as shown in the illustration.

Rotate the blade and measure in several places.

If any point on the blade measures more than 500 Ω, the cartridge bearing must be replaced. Contact Tidland Customer Service.

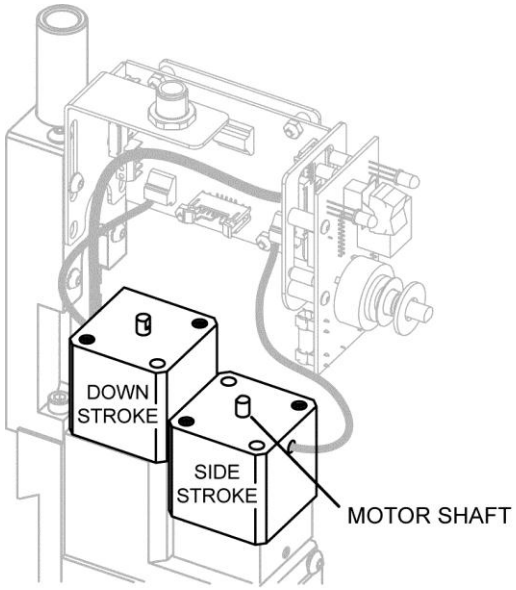


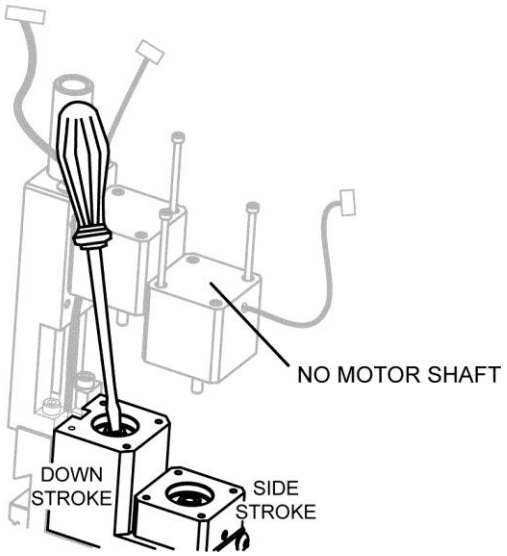
Releasing a Bound Drive Shaft Assembly

If there is no blade cartridge movement, or if the knifeholder stalls, a drive shaft assembly may be binding and you may need to manually release it. Before disassembling the knifeholder, call Tidland Customer Service for assistance with "Maintenance Mode." 800.426.1000

- Some disassembly is required to access the motors: Class II (p. 45); Class III (p. 52).
- If your motor does not have a shaft (or knob) on top, you will need to remove the motor to access the drive shaft and use a screwdriver to turn the shaft.

Class II shown





Downstroke Drive Shaft Assembly

If the blade cartridge is retracted and will not extend, turn the shaft clockwise. ↻

If the blade cartridge is extended and will not retract, turn the shaft counterclockwise. ↺

Sidestroke Motor Drive Shaft Assembly

If the blade cartridge sidestroke is engaged and will not disengage, turn the shaft clockwise. ↻

If the blade cartridge sidestroke will not engage, turn the shaft counterclockwise. ↺

Replacing the Fuse in the e-Knifeholder

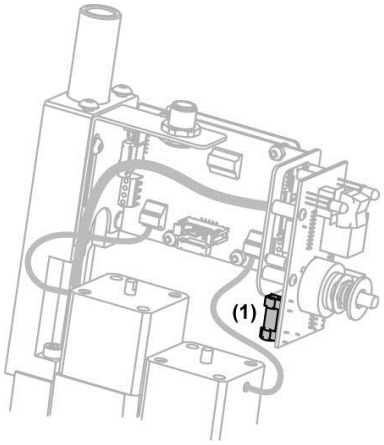
For cabinet fuses , see page 30.

To reduce the risk of fire, replace only with the same type 1A, minimum 24Vdc fuse.

1. Turn off power to the knifeholder.
2. Disconnect power/communication cable from the knifeholder (p. 23).
3. Remove knifeholder from guide bar (p. 32).
4. Remove cartridge from control body (p. 22 – recommended for safe handling of knifeholder).

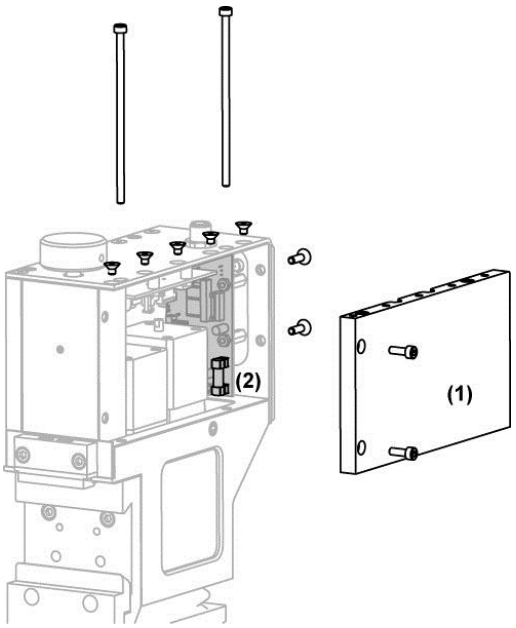
Class II

1. Remove top cover from knifeholder (p. 45); The fuse **(1)** is located on the User Interface board on the Motor Control Module.
2. Replace the fuse.
3. Reinstall the top cover.



Class III

1. Remove screws as shown to remove the right hand side cover **(1)**.
2. Replace the fuse **(2)**.
3. Reinstall the side cover.



Sensors – Class II

Access and replace sensors.

- The sensors detect the starting point (zero) for the downstroke or sidestroke motion of the knifeholder.
- The downstroke sensor is located on the underside of the control body; the sidestroke sensor is located on the top surface of the dovetail mount assembly.

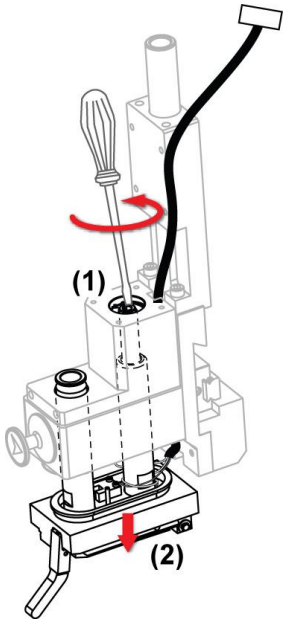
Before beginning, remove the top cover, motors (p. 45) and sidestroke drive assembly (p. 48).

Removing the Sensor Cable Assembly

Class II

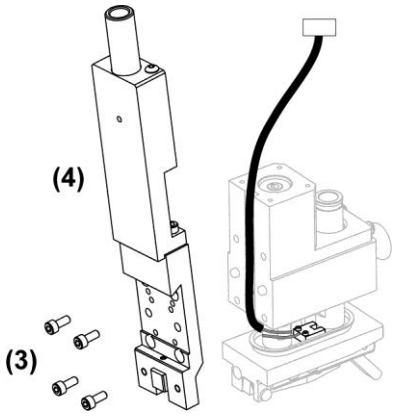
Extending the Dovetail

1. Carefully insert screwdriver into the downstroke bearing shaft **(1)** and turn *counterclockwise* to extend the dovetail assembly **(2**) completely.
   Note: You will need at least 1" clearance to access the sensors.
2. Remove the bellows (not shown) by gently stretching it over the dovetail assembly.



Removing the Backplate Mount Assembly

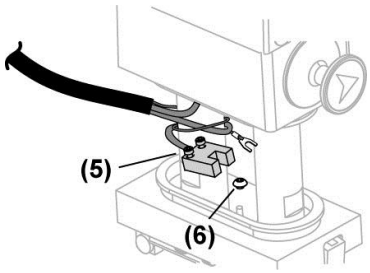
3. Remove four socket head cap screws **(3)** and pull the backplate mount assembly **(4)** off of the knifeholder.



Removing the Sensor Cable Assembly

4. Use 1.5 mm hex drive to remove the two screws **(5)** from the sensor.
5. Use 2 mm hex drive to loosen the button head screw that secures the ground wire terminal **(6)**.

Installing the new cable (p. 42)



Sensors – Class III

Access and replace sensors.

- The sensors detect the starting point (zero) for the downstroke or sidestroke motion of the knifeholder.
- The downstroke sensor is located on the underside of the control body; the sidestroke sensor is located on the top surface of the dovetail mount assembly.

Before beginning, remove the top cover (p. 52) and the downstroke motor (p. 54).

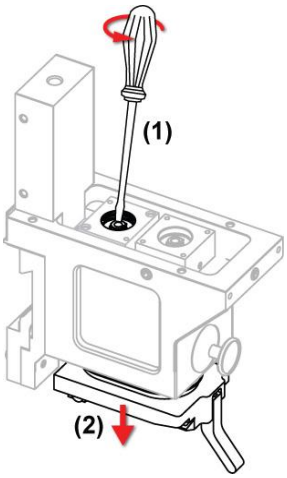
Removing the Sensor Cable Assembly

Class III

Extending the Dovetail

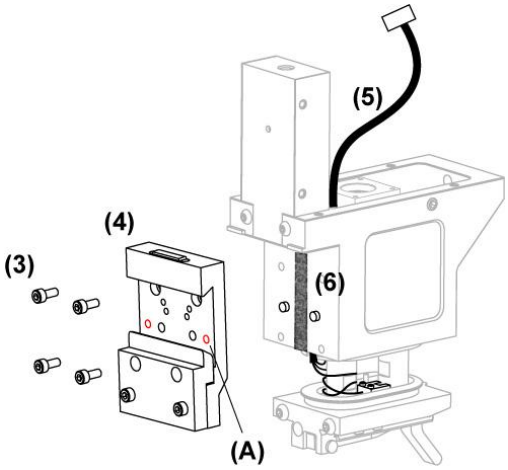
1. Carefully insert screwdriver into the downstroke bearing shaft **(1)** and turn *counterclockwise* to extend the dovetail assembly **(2**) completely.

   Note: You will need at least 1" clearance to access the sensors.
2. Remove the bellows (not shown) by gently stretching it over the dovetail assembly.



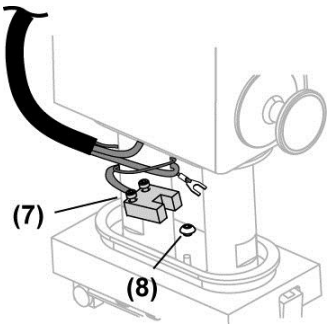
Removing the Backplate Mount Assembly

3. Remove four socket head cap screws **(3)**.
4. Use M5 jacking screws at **(A)** to remove the backplate mount assembly **(4)** from the knifeholder.
5. The sensor cable assembly **(5)** is sealed to the control body with foam **(6)** and clear silicone. Carefully remove the foam and sealant to free the cable.



Removing the Sensor Cable Assembly

6. Use 1.5 mm hex drive to remove the two screws **(7)** from each sensor.
7. Use 2 mm hex drive to loosen the button head screw that secures the ground wire terminal **(8)**.
8. When all wires are loose, gently pull the cable down; the connector should fit through the slot between the control body and the top block.

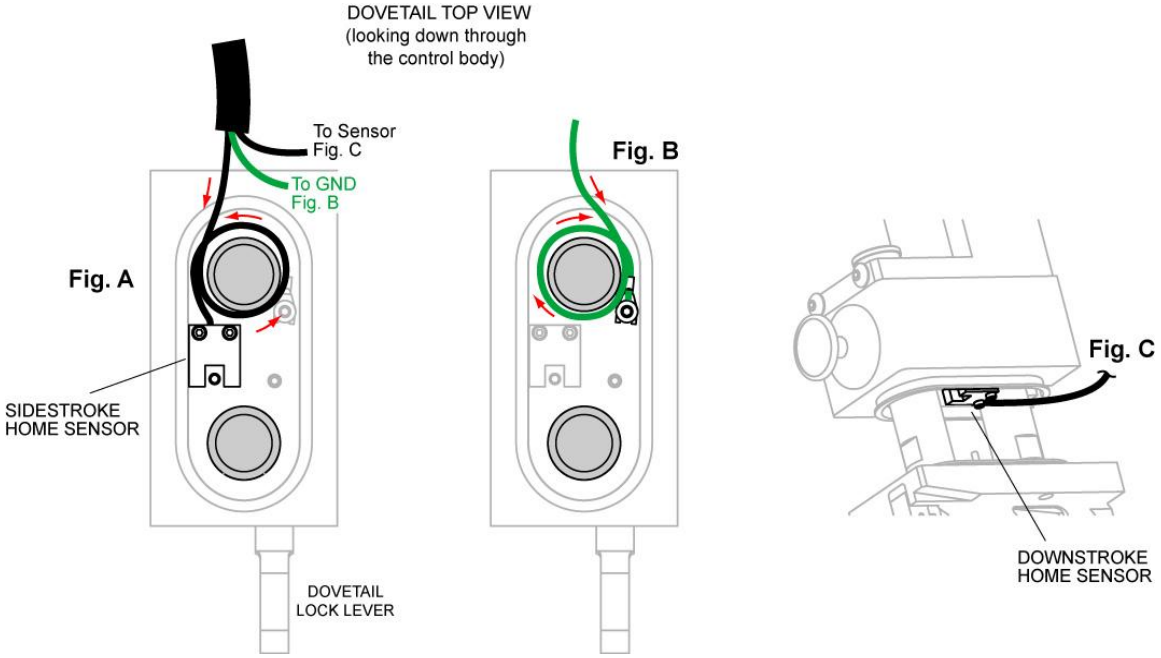


Install the new cable (p. 42)

Installing a New Sensor Cable Assembly

- The new cable assembly comes complete with sensors, ground wire terminal and connectors.
- The sensor on the long wire is the sidestroke home sensor; the short black wire holds the downstroke home sensor.
- Use a very small amount of *Loctite 222* (purple) on sensor screw threads when reinstalling.

1. Starting with the sidestroke home sensor, wrap the cable one time around the guide rod as shown in Fig. A.
2. Hold the sensor flush to the inside edge of the dovetail; secure the sensor with two socket head cap screws (1.5 mm hex drive).
3. Wrap the green ground wire in the opposite direction as shown in Fig. B and tighten the button head screw to secure the terminal (2 mm hex drive). **The terminal must not touch the guide rod.**
4. Install the downstroke home sensor on the underside of the control body as shown in Fig. C. Make sure the sensor is flush to the inside edge of the mounting surface.



Reinstall the backplate (p. 43)

Reinstalling the Backplate Mount Assembly

Class II

1. Arrange the cable along the back of the control body and reinstall the backplate mount assembly. See illustration on page 40, Step 3.
2. Reinstall the sidestroke drive assembly and motors (p. 50).
3. Reinstall the top cover (p. 51).

Class III

1. Arrange the cable along the back of the control body. Reinstall the foam and seal the ends with clear silicone sealant **(Fig. D)**. Let dry.
2. Reinstall the motors (p. 59).
3. Reinstall the top cover (p. 60).

Class II and III

Reinstall the bellows by gently stretching them over the dovetail.

Reinstalling the Blade Cartridge (p. 22)

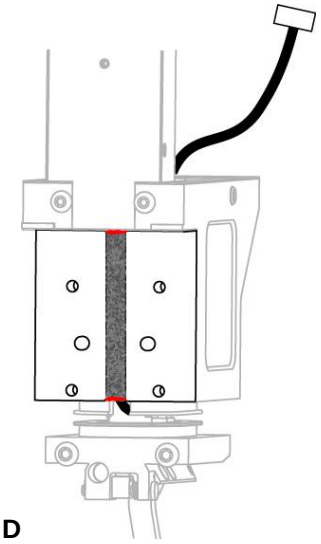


Fig. D

Linear Bearing

If linear movement becomes rough or sticky:

- Remove knifeholder and clean the guide bar with a mild solvent.
- Inspect the linear bearing to ensure all of the balls are intact.
- Remove dust and debris from linear bearing.

If the bearing is packed with dust, or if too many of the balls are missing, it may need to be replaced.

Safety Recommendation
Remove knifeholder from guide bar (p. 32) and remove blade cartridge from knifeholder (p. 22) before beginning disassembly. Turn off power to knifeholder before disconnecting cable.

The new bearing is shipped with a short piece of rail installed in it to keep the bearing balls intact. **Do not remove this short rail while working with the knifeholder; you will use it to install the knifeholder onto the guide bar.**

Replacing the Linear Bearing

For Class II, remove top cover and disconnect P3, P5 and X2 before beginning (p. 45).

1. Remove screws **(1)** and pry the backplate assembly **(2)** from the control body **(3)**. Note: For Class III, use M5 jacking screws at **(A)** to remove the mounting plate.
2. Remove screws **(4)** and separate the linear bearing **(5)** from the backplate.
3. Install the new bearing (with short rail piece intact) and reassemble the backplate assembly. For Class III, make sure that the brake shoe and spring **(Fig. E)** are in place before reinstalling the backplate.

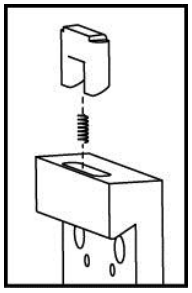
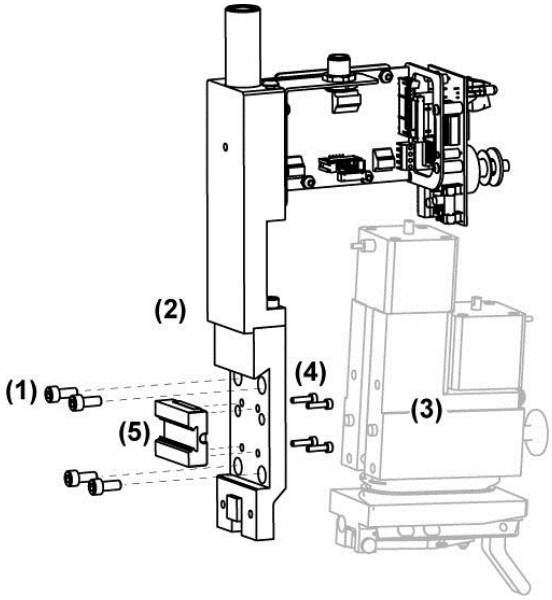
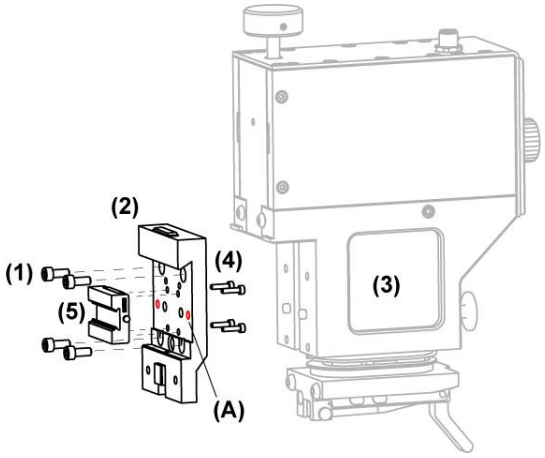


Fig. E



Class II

Class III



Accessing the Motors – Class II

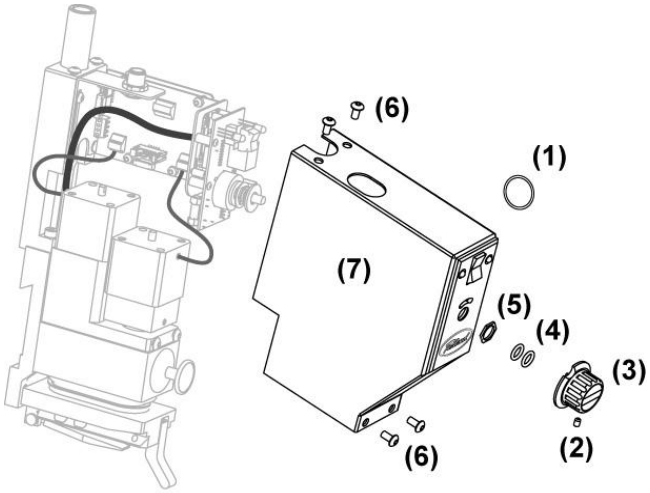
- Remove a motor to replace it or to access the downstroke/sidestroke drive assemblies for repair or lubrication.
- Knifeholder configurations vary: newer motors have a rear motor shaft on the top that can be used to turn the drive shaft assembly.
- See page 62 for exploded views and parts list.

- Turn off power to knifeholder.
- Disconnect the power/comm. cable.
- Remove knifeholder from guide bar.
- Remove blade cartridge from knifeholder for safe handling.
- To avoid static discharge, use proper grounding methods.

Remove the Top Cover

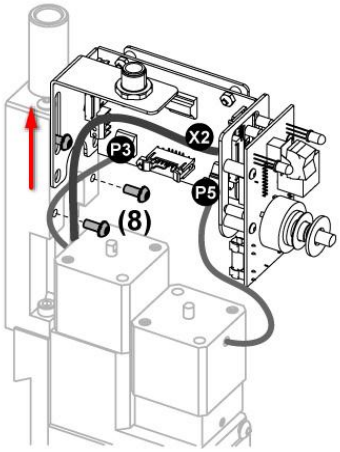
1. Remove the plug **(1)** from the right hand side of the top cover (to avoid damage to the switch inside).
2. **IMPORTANT:** Loosen set screw **(2)** and pull function control knob **(3)** off of the switch shaft.
3. Remove the o-rings **(4)** and switch nut **(5)**.
4. Remove button head screws **(6)** from the top cover.
5. Carefully remove the top cover **(7)** from the knifeholder assembly.

Note: Do not disassemble the rotary switch.



Lift (or Remove) Bracket

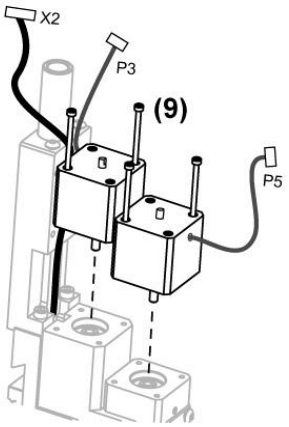
1. Disconnect P3, P5 and X2 from the PC board assembly.
2. Loosen and remove two button head screws **(8)** from the bracket; loosen the two remaining bracket screws.
3. Slide bracket up and tighten screws.



Option: For easier access to the motors, remove all four button head screws and remove the bracket from the knifeholder.

Removing a Motor

1. Remove two socket head cap screws **(9)** from the motor.
2. Pull the motor out of the downstroke or sidestroke drive assembly.



Reinstalling a Motor

1. Align motor key with slot in drive shaft.
2. Make sure cables are oriented correctly.
3. Reinstall socket head cap screws.

Motor Drive Shaft Assemblies – Class II

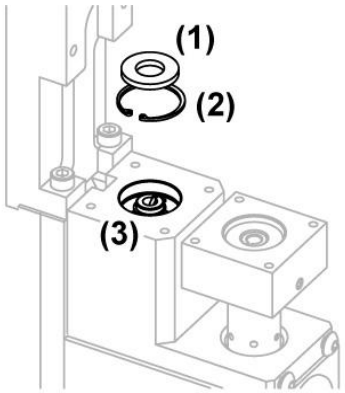
Downstroke Drive Assembly

- The downstroke motor assembly controls the vertical movement of the blade cartridge.
- Access and remove the drive shaft assembly for lubrication or bearing replacement.
- See page 62 for exploded views and parts list.

Before beginning, remove the top cover and motors (p. 45).

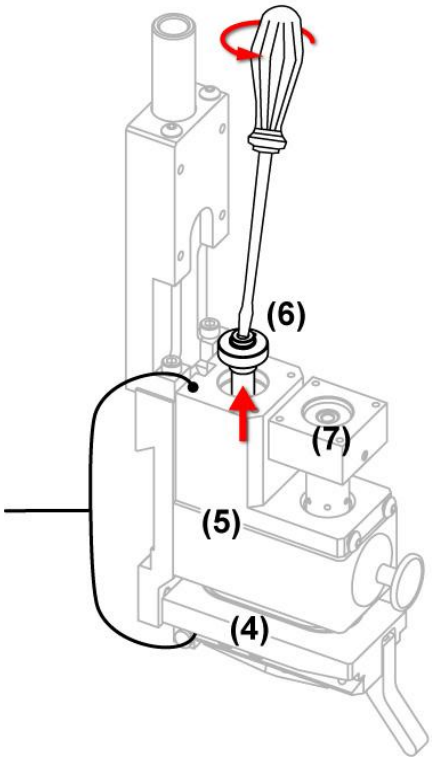
Note

- The sidestroke motor does not need to be removed for these operations; for clarity, it is not shown here.
- When the motor is removed, you can manipulate the drive assembly manually to extend or retract the dovetail assembly during repairs.
- For easier access to dovetail parts, remove the bellows by stretching it over the dovetail assembly after removing the blade cartridge.



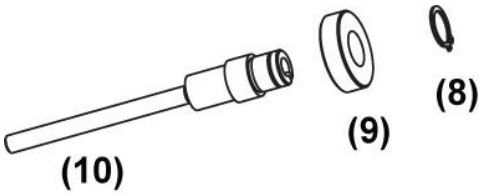
Removing the Downstroke Drive Assembly

1. Lift out Teflon® washer **(1)** and remove snap ring **(2)** from the downstroke bearing assembly **(3)**.
2. Secure the dovetail **(4)** to the control body **(5)** using a *Quick-Grip* or other bar clamp.
3. Carefully insert a flat blade screwdriver into the bearing shaft **(6)** and rotate it *counterclockwise* until it begins to lift upwards out of the control body.
4. Continue turning the shaft until you hear the bearing "pop" loose. Continue to turn the bearing shaft until the threads are free; pull shaft out of the control body.
5. Remove the clamp. The dovetail assembly will extend but will be held to the control body by the sidestroke drive assembly bearing flange **(7**).



Replacing the Bearing (Downstroke)

1. Remove the snap ring **(8)** and bearing **(9)** from the shaft.
2. Install new bearing and reinstall the snap ring.



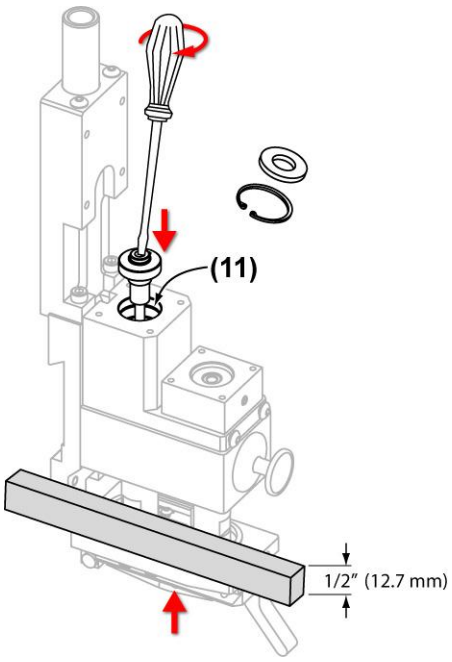
Lubricating the Downstroke Bearing Shaft

1. Coat shaft threads **(10)** with white lithium grease. Wipe off excess lubricant.
2. Also lubricate the mating threads inside the guide rod.

   (Recommended: *Lubriplate EMB Polymer* or No. 2 Grease)

Reinstalling the Downstroke Drive Assembly

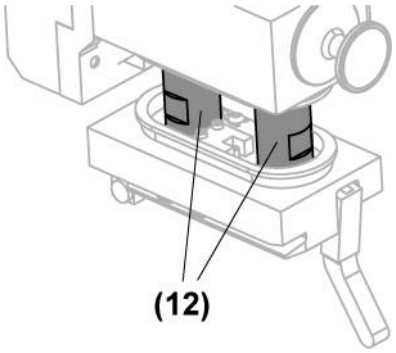
1. Lubricate the inside surface of the guide rod **(11)** before reinstalling the bearing shaft assembly.
   a. Use *Dynacco Teflon Clear Lube* (TCL).
   b. Apply lubricant to finger or a small foam brush and then apply inside guide rod. To avoid contaminating the moving parts with lint, **do not use a cotton swab.**
   c. Let the lube set up for a few minutes before installing the bearing shaft.
   d. Make sure bearing shaft is also lubricated; see above.
2. Insert the bearing shaft assembly into the control body.
3. With a flat blade screwdriver, rotate the bearing shaft *clockwise* until it stops turning in the control body.
4. Insert a small wedge (min. 1/2" tall) along the outside edge of the dovetail.
5. Continue to turn the shaft and the dovetail will begin to retract, stopping at the wedge. Turn the shaft until the bearing is pulled into the control body.
6. Reinstall the snap ring and the Teflon washer.



Lubricating the Guide Rods

Note: For clarity, sensor wiring is not shown.

1. Remove the bellows, if necessary.
2. While the dovetail assembly is in the extended position, lubricate the outside of each guide rod **(12)**.
   a. Use *Dynacco Teflon Clear Lube* (TCL).
   b. Apply lubricant to finger or a small foam brush and then apply to guide rods. **Do not use a cotton swab.**
   c. Let the lube set up for a few minutes before retracting the dovetail assembly.
3. Reinstall the bellows.



Sidestroke Drive Shaft Assembly (p. 48)

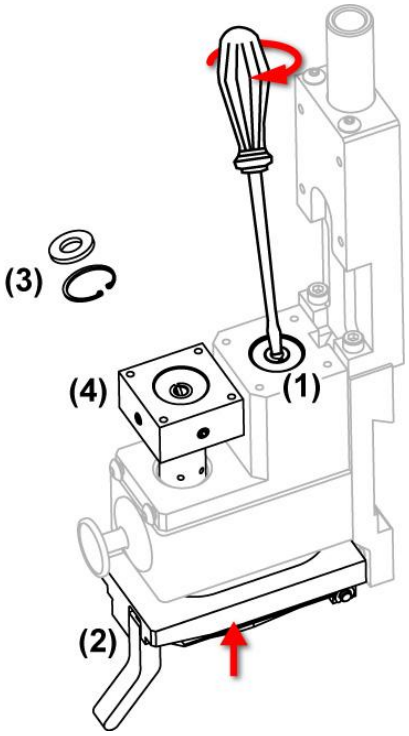
Reinstalling the Motors (p. 50)

Motor Drive Shaft Assemblies – Class II

Sidestroke Drive Assembly

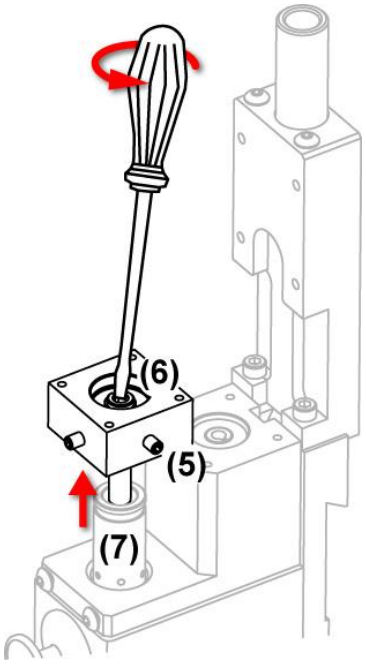
- The factory calibrated sidestroke drive assembly controls the side shift of the knife blade.
- Access and remove the drive shaft assembly for lubrication or bearing replacement.
- See page 62 for exploded views and parts list.

Before beginning, remove the top cover and motors (p. 45).



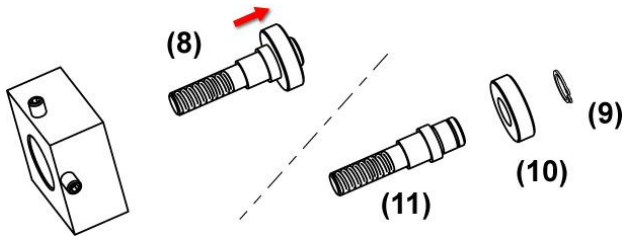
Removing the Sidestroke Drive Assembly

1. Carefully insert screwdriver into the downstroke bearing shaft **(1)** and turn *clockwise* to retract the dovetail assembly **(2**) completely.
2. Remove the Teflon® washer and large snap ring **(3)** from the bearing flange **(4)**.
3. Loosen the two set screws **(5)** in the bearing flange.
4. Insert screwdriver into the sidestroke bearing shaft **(6)** and rotate *counterclockwise* until the bearing shaft assembly comes free of the cant key rod **(7)**.



Replacing the Bearing (Sidestroke)

1. Press the bearing shaft assembly **(8)** out of the bearing flange.
2. Remove the snap ring **(9)** and bearing **(10)** from the shaft **(11)**.
3. Install new bearing and reinstall the snap ring.
4. Press the bearing shaft assembly back into the bearing flange.



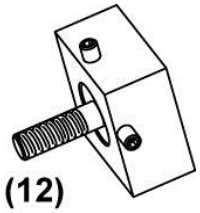
Lubricating the Drive Shaft Assembly Parts

a. Use recommended lubricants as noted.
b. Apply lubricant to finger or small foam brush and then apply to parts.
c. To avoid contaminating moving parts with lint, **do not use a cotton swab** to apply lubricant.

Lubricating the Sidestroke Bearing Shaft Threads

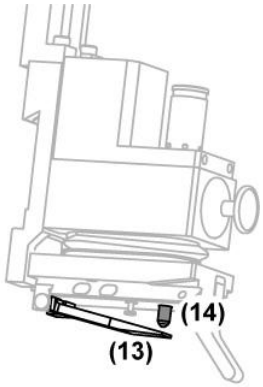
1. Coat shaft threads **(12)** with white lithium grease. Wipe off excess lubricant.
2. Also lube the mating threads down inside the cant key rod.

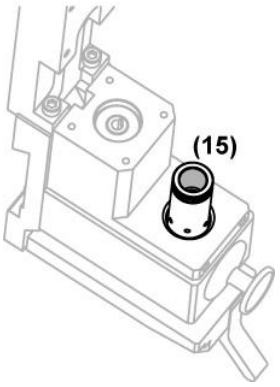
   (Recommended: *Lubriplate EMB Polymer* or No. 2 Grease)



Lubricating the Cant Key Rod

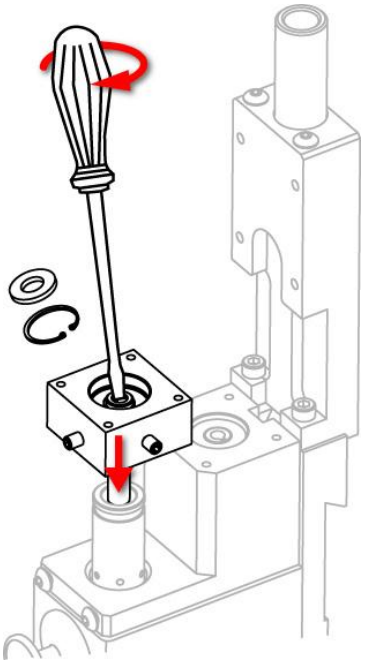
1. Pull the sidestroke lever **(13)** away from the dovetail **(14)** and wipe all dust and debris. Do not use solvents.
2. Apply TCL to the inside and outside surfaces of the cant key rod **(15)**; let the lube set up for a few minutes before extending the dovetail assembly.





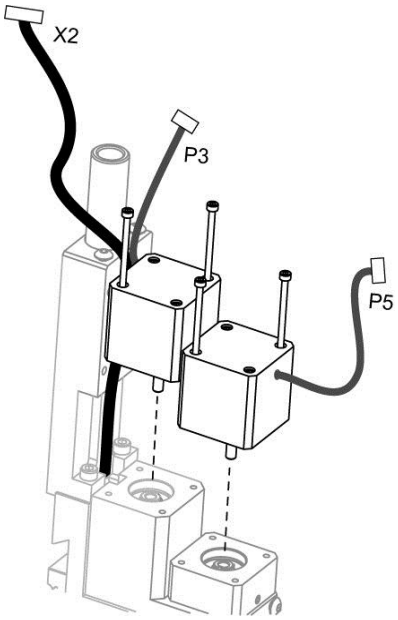
Reinstalling the Sidestroke Drive Assembly

1. Insert bearing flange assembly into the cant key rod. Threads should be well-lubricated (p. 49).
2. Insert screwdriver and rotate *clockwise* until the bearing shaft stops turning.
3. Tighten the set screws in the bearing flange.
4. Reinstall the large snap ring and the Teflon washer.
5. Reinstall the bellows, if necessary.



Reinstalling the Motors

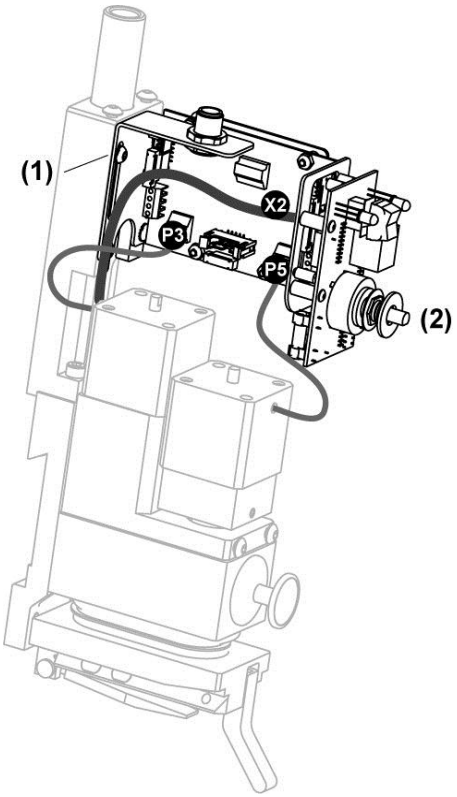
1. Align motor key with slot in drive shaft.
2. Make sure cables are oriented correctly.
3. Reinstall socket head cap screws.



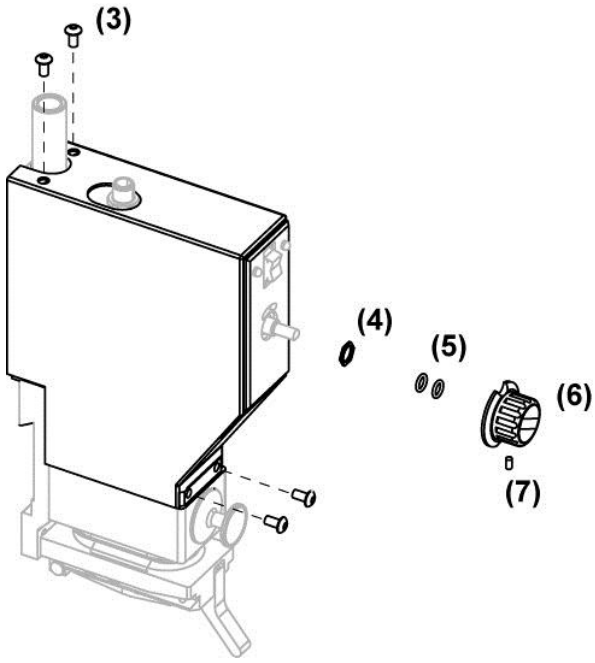
Reinstalling the Top Cover (p. 51)

Reinstalling the Top Cover – Class II

To avoid static discharge, use proper grounding methods.



1. Reinstall the Motor Control Module with four socket head cap screws **(1)**. Slide the bracket all the way down toward the control body before tightening the screws.
2. Reconnect P3, P5, and X2.
3. Ensure that the two washers are in place on the switch shaft **(2)**.



4. Slide the top cover onto the control body and install four button head screws **(3)** to secure the top cover.
5. Install switch nut **(4)** and two o-rings **(5)**.
6. Install the function control knob **(6)**.
7. To ensure secure movement of the knob during positioning, press the knob firmly against the o-rings while tightening the set screw **(7)**.
8. Ensure that bellows are in place between the control body and the dovetail assembly before reinstalling the knifeholder on the guide bar.

Reinstall Blade Cartridge (p. 22)

Mount Knifeholder on the Guide Bar (p. 19)

Accessing the Motors – Class III

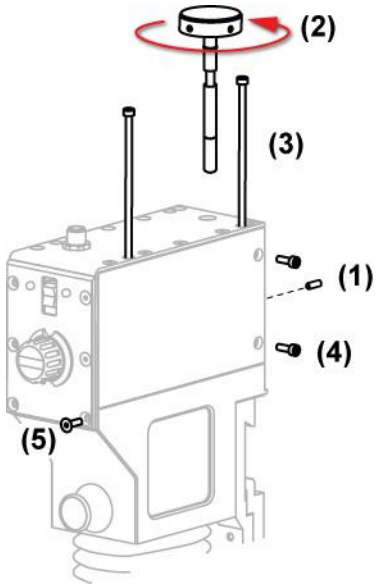
- Remove a motor to replace it or to access the downstroke/sidestroke drive assemblies for repair or lubrication.
- Knifeholder configurations vary: newer motors have a rear motor shaft on the top that can be used to turn the drive shaft assembly.
- See page 64 for exploded views and parts list.

Before Disassembly

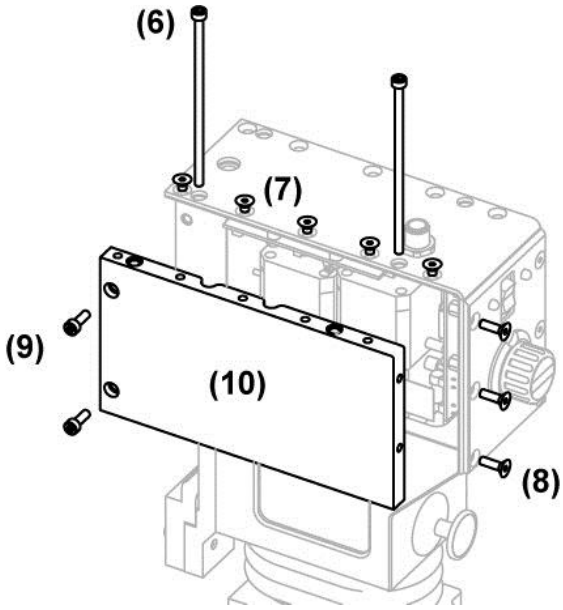
- Turn off power to knifeholder.
- Disconnect the power/communication cable.
- Remove knifeholder from guide bar.
- Remove blade cartridge from knifeholder for safe handling.

Remove Top Cover

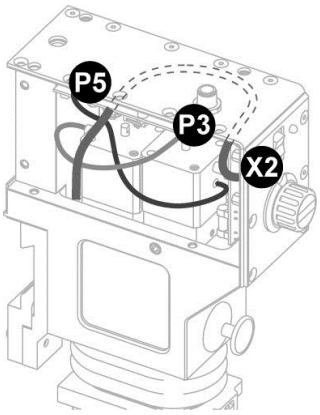
1. Loosen set screw **(1)**; turn lock screw **(2)** counterclockwise until it is free to remove.
2. Remove screws **(3, 4, and 5)** as shown from top cover assembly.



3. Remove screws **(6, 7, 8 and 9)** as shown from top cover assembly.
4. Pry left side cover **(10)** loose and remove.

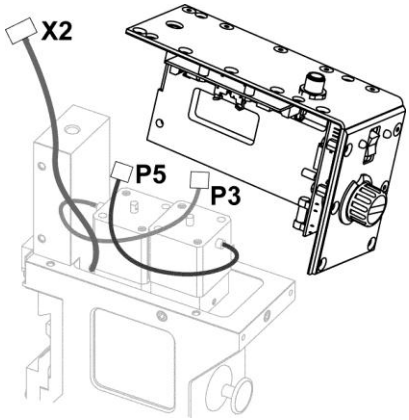


Removing the Top Cover (continued)



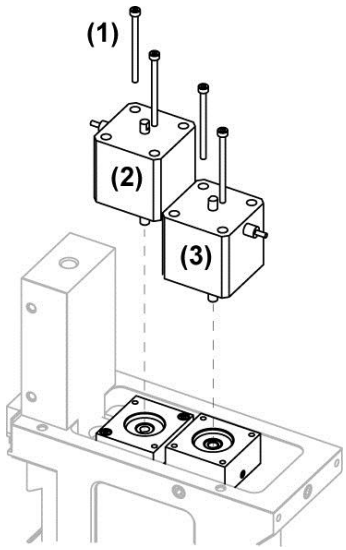
To avoid static discharge, use proper grounding methods.

5. Disconnect cables **P3, P5** and **X2** from the PC board inside the top cover.
6. Lift off the top cover.



Removing the Motors

1. Using a 3 mm hex wrench, remove screws **(1)** from motors:
   (2) downstroke motor
   (3) sidestroke motor
2. Pull the motors up out of the drive assemblies.



Note: There is a key installed with *Loctite* in the drive shaft of each motor. Ensure that it remains intact for reassembly.

Removing Drive Shaft Assemblies (p. 54)

Reinstalling the Motors (p. 59)

Motor Drive Shaft Assemblies – Class III

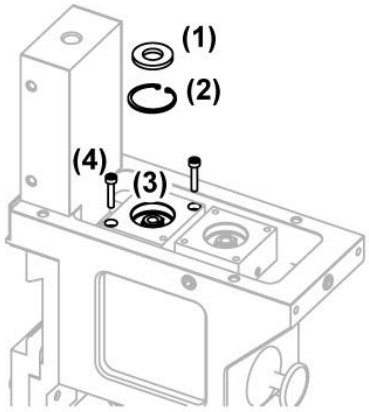
Downstroke Drive Assembly

- The downstroke motor assembly controls the vertical movement of the blade cartridge.
- Access and remove the drive shaft assembly for lubrication or bearing replacement.
- See page 64 for exploded views and parts list.

Before beginning, remove the top cover assembly and motors (p. 52-53).

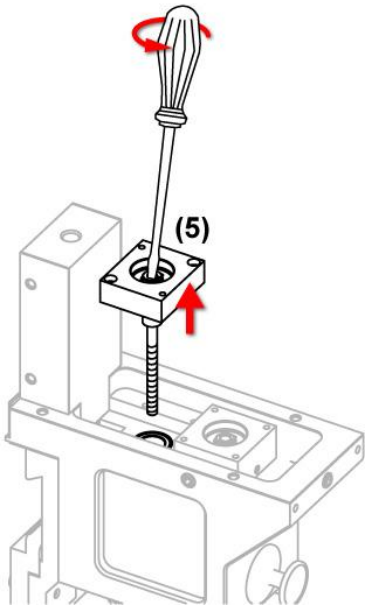
Note

- The sidestroke motor does not need to be removed for these operations; for clarity, it is not shown here.
- When motors are removed, you can manipulate the drive assemblies manually to extend or retract the dovetail assembly during repairs.
- For easier access to dovetail parts, remove the bellows by stretching it over the dovetail assembly after removing the blade cartridge.



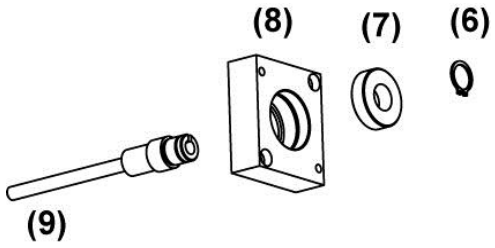
Removing the Downstroke Drive Assembly

1. Lift out Teflon® washer **(1)** and remove snap ring **(2)** from the downstroke bearing assembly **(3)**.
2. Remove two socket head cap screws **(4)**. The dovetail will extend, but is held captive by the sidestroke bearing flange.
3. Holding the dovetail assembly up against the control body, carefully insert a flat blade screwdriver into the bearing shaft **(5)** and rotate it *counterclockwise* until the bearing assembly begins to lift upwards out of the control body. Continue turning the shaft until threads are free; pull the assembly from the control body.



Replacing the Bearing (Downstroke)

1. Remove the snap ring **(6)** and press the bearing **(7)** out of the bearing flange **(8)**.
2. Install new bearing and reinstall the snap ring.

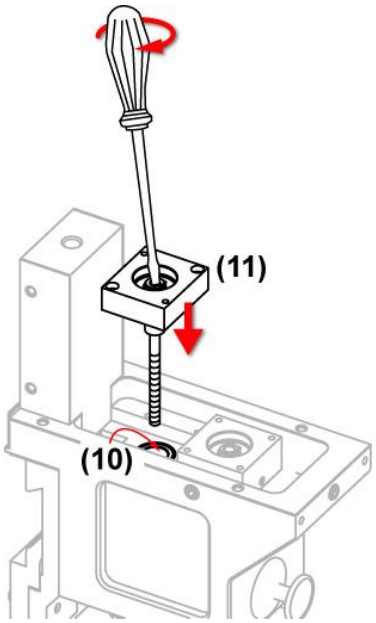


Lubricating the Downstroke Bearing Shaft

1. Coat shaft threads **(9)** with white lithium grease. Wipe off excess lubricant.
2. Also lubricate the mating threads inside the guide rod. To avoid contaminating the moving parts with lint, **do not use a cotton swab.**

(Recommended: *Lubriplate EMB Polymer* or No. 2 Grease)

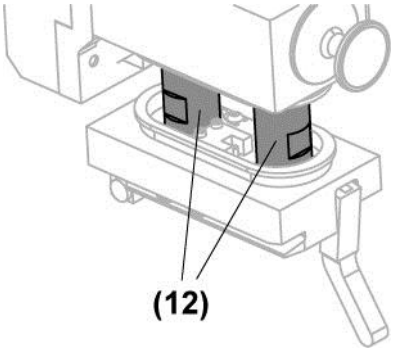
Reinstalling the Downstroke Drive Assembly



1. Lubricate the inside surface of the guide rod **(10)** before reinstalling the bearing shaft assembly **(11)**.
   a. Use *Dynacco Teflon Clear Lube* (TCL).
   b. Apply lubricant to finger or a small foam brush and then apply inside guide rod. To avoid contaminating the moving parts with lint, **do not use a cotton swab.**
   c. Let the lube set up for a few minutes before installing the bearing shaft.
2. Make sure bearing shaft is also lubricated; see above.
3. Insert the bearing shaft assembly into the control body.
4. With a flat blade screwdriver, rotate the bearing shaft *clockwise* until it stops turning in the control body.

Lubricating the Guide Rods

Note: For clarity, sensor wiring is not shown.



1. Remove the bellows, if necessary.
2. While the dovetail assembly is in the extended position, lubricate the outside of each guide rod **(12)**.
   a. Use *Dynacco Teflon Clear Lube* (TCL).
   b. Apply lubricant to finger or a small foam brush and then apply to guide rods. **Do not use a cotton swab.**
   c. Let the lube set up for a few minutes before retracting the dovetail assembly.
4. Reinstall the bellows.

Reinstalling the Motors (p. 59)

Sidestroke Drive Shaft Assembly (p. 57)

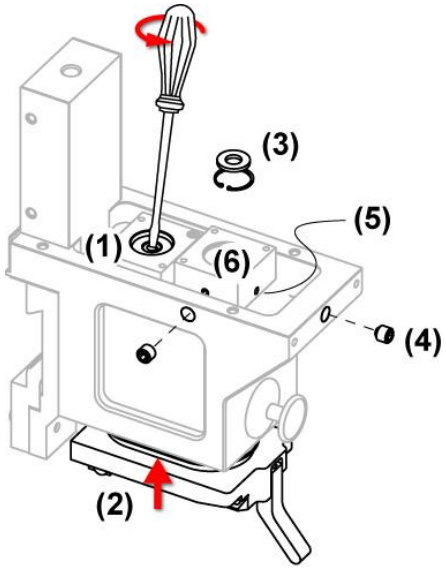
Motor Drive Shaft Assemblies – Class III

Sidestroke Drive Assembly

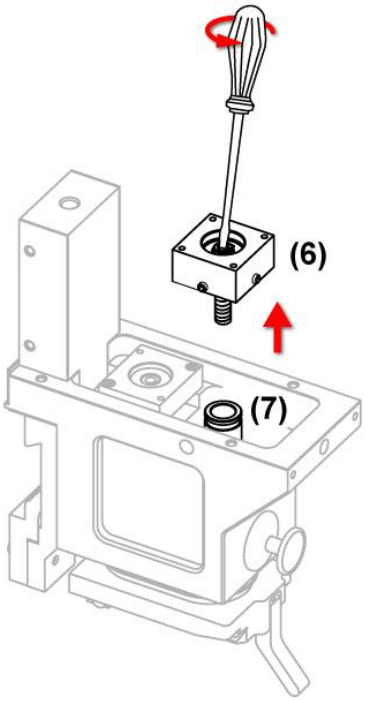
- The factory calibrated sidestroke drive assembly controls the side shift of the knife blade.
- Access and remove the drive shaft assembly for lubrication or bearing replacement.
- See page 64 for exploded views and parts list.

Before beginning, remove the top cover assembly and motors (p. 52-53).

1. Using a flat blade screwdriver, rotate the downstroke bearing shaft **(1)** counterclockwise until the dovetail assembly **(2)** is fully retracted.
2. Remove Teflon washer and large snap ring **(3)** from the sidestroke bearing assembly.
3. Remove set screws **(4)** from lower body to access the set screws that retain the bearing flange **(6)** to the cant key rod.
4. Loosen two set screws **(5)** in the side of the sidestroke bearing flange.

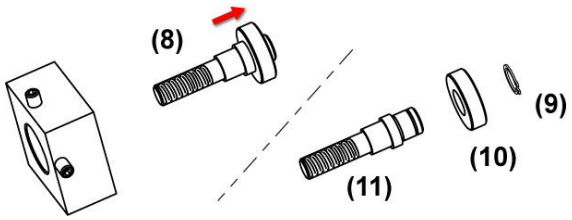


5. Rotate the sidestroke bearing shaft counterclockwise until the bearing flange assembly **(6)** is free to remove from the cant key rod **(8)**.



Replacing the Bearing (Sidestroke)

1. Press the bearing shaft assembly **(8)** out of the bearing flange.
2. Remove the snap ring **(9)** and bearing **(10)** from the shaft **(11)**.
3. Install new bearing and reinstall the snap ring.
4. Press the bearing shaft assembly back into the bearing flange.



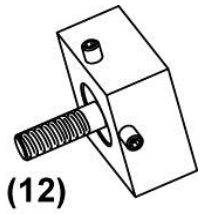
Lubricating the Drive Shaft Assembly Parts

a. Use recommended lubricants.
b. Apply lubricant to finger or small foam brush and then apply to parts.
c. To avoid contaminating moving parts with lint, **do not use a cotton swab** to apply lubricant.

Lubricating the Sidestroke Bearing Shaft Threads

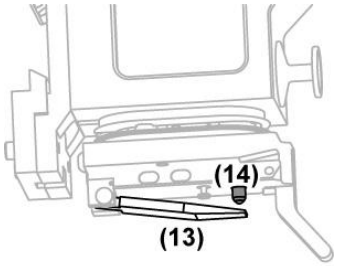
1. Coat shaft threads **(12)** with white lithium grease. Wipe off excess lubricant.
2. Also lube the mating threads down inside the cant key rod.

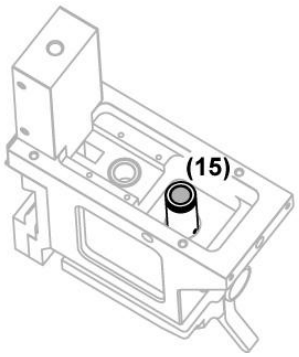
   (Recommended: *Lubriplate EMB Polymer* or No. 2 Grease)



Lubricating the Cant Key Rod

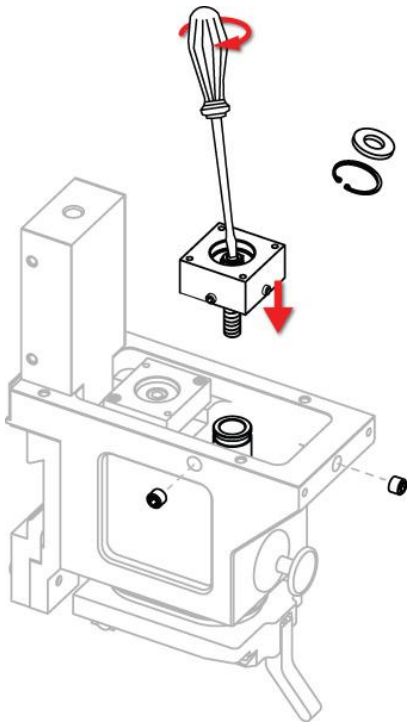
3. Pull the sidestroke lever **(13)** away from the dovetail **(14)** and wipe all dust and debris. Do not use solvents.
4. Apply TCL to the inside and outside surfaces of the cant key rod **(15)**; let the lube set up for a few minutes before extending the dovetail assembly.





Reinstalling the Sidestroke Drive Assembly

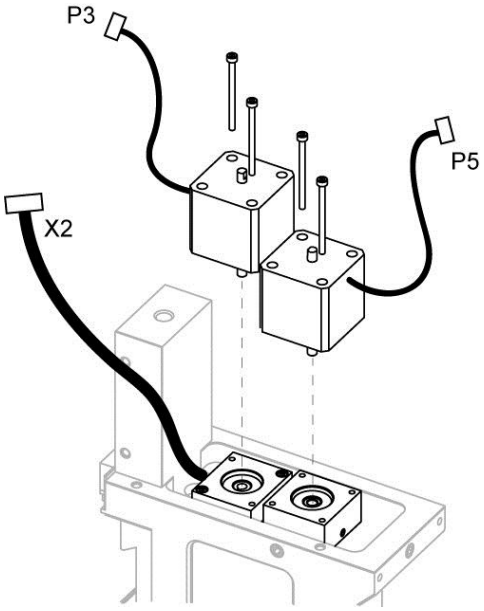
1. Insert bearing flange assembly into the cant key rod. Threads should be well-lubricated (p. 58).
2. Insert screwdriver and rotate *clockwise* until the bearing shaft stops turning.
3. Tighten the set screws in the bearing flange.
4. Reinstall the large snap ring and the Teflon washer.



Reinstalling the Motors

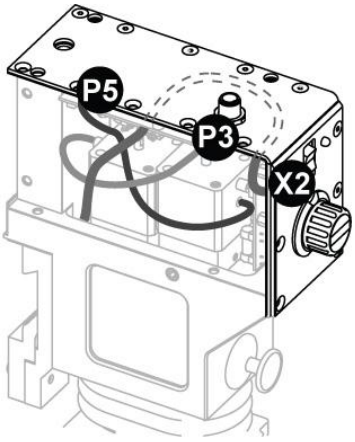
1. Align motor key with slot in drive shaft.
2. Make sure cables are oriented correctly.
3. Reinstall socket head cap screws.

Reinstalling the Top Cover (p. 60)

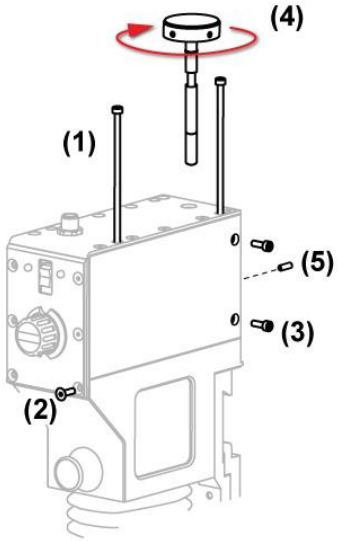


Reinstalling the Top Cover – Class III

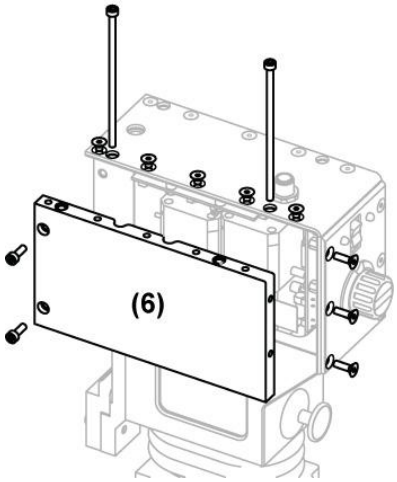
To avoid static discharge, use proper grounding methods.



1. Place the top cover on the control body and reconnect the motor wiring.



2. Install screws **(1, 2, 3)**.
3. Install lock knob **(4)** and turn clockwise to tighten.
4. Tighten set screw **(5)** to secure lock knob in control body.



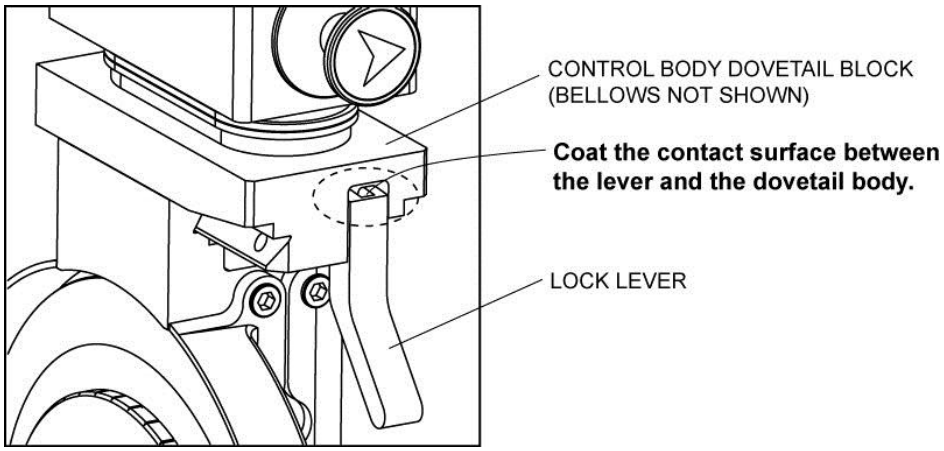
5. Install left hand side cover and remaining screws.

Reinstall Blade Cartridge (p. 22)

Mount Knifeholder on the Guide Bar (p. 19)

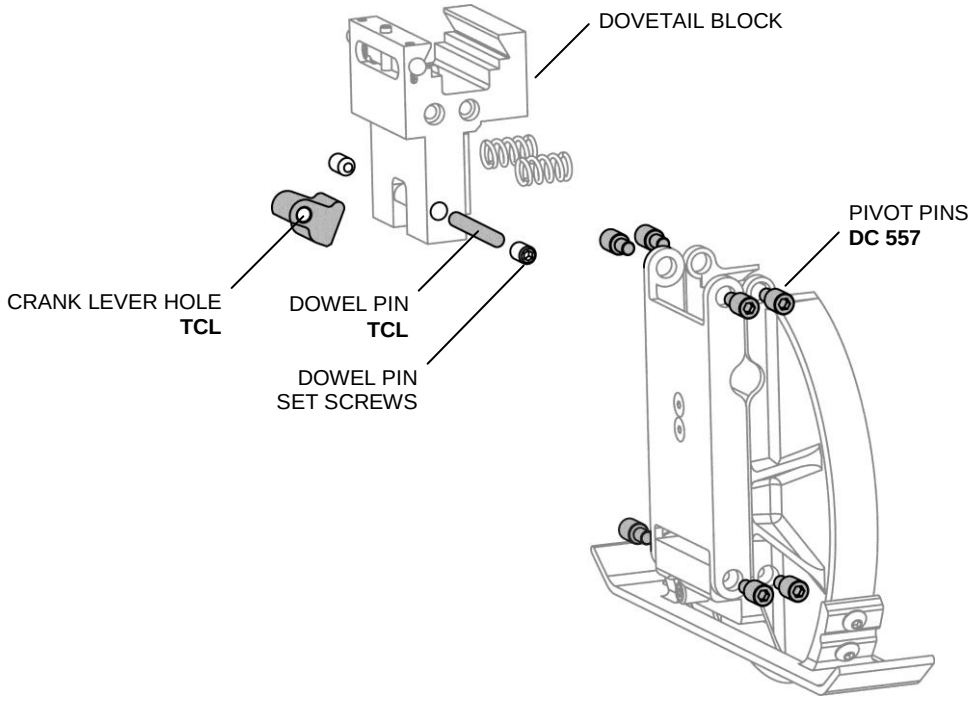
Dovetail Lubrication Points

Ensure that the interface between the control body dovetail block and the lock lever is well-lubricated with a Teflon®-based lubricant similar to *Dynacco Teflon Clear Lube (TCL)*. Use a small nozzle on the spray can to direct the lubricant into the area.


CONTROL BODY DOVETAIL BLOCK
(BELLOWS NOT SHOWN)
Coat the contact surface between
the lever and the dovetail body.
LOCK LEVER

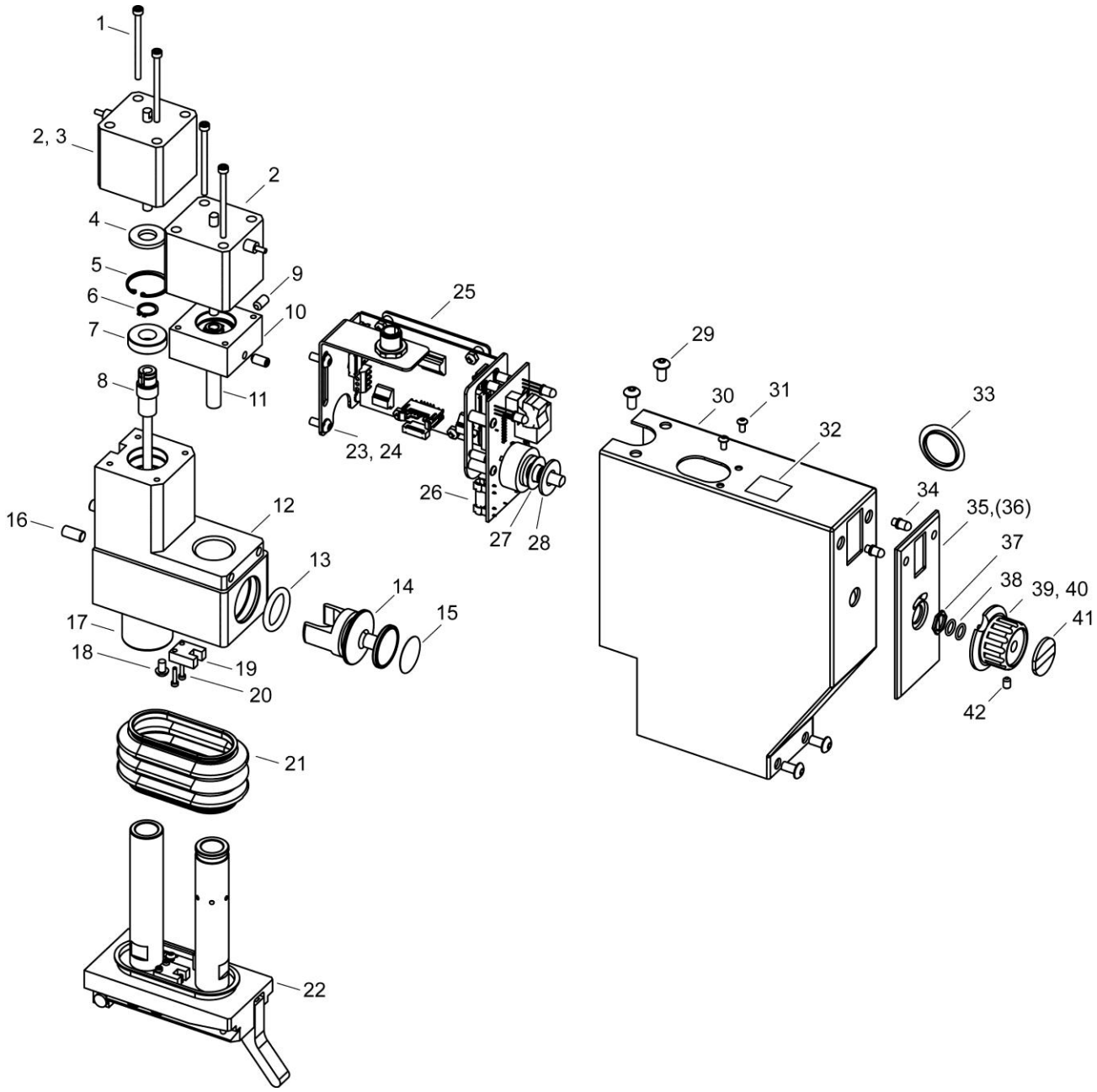
Cartridge Lubrication Points

1. Remove the pivot pins from the cartridge to release it from the dovetail block.
2. Lubricate the pivot pins with *Dow Corning 557 Silicone Dry Film Lubricant* (DC557).
3. Lubricate the hole in the crank lever and the dowel pin with a Teflon®-based lubricant similar to *Dynacco Teflon Clear Lube* (TCL). Use a small nozzle on the spray can to direct the lubricant into the area. Let the TCL set up for a few minutes before reassembly.
4. When reinstalling the dowel pin set screws, make sure both of them bottom out against the dowel pin and do not extend out of the dovetail block.



Control Body

Class II



Control Body

Class II

	Item	Description			Qty	Part No.
	1	Soc Hd Cp Scr	For Item 2	M3 x 45 mm (black oxide)	2	685108
			For Item 3	Provided with motor	2	n/a
	2	Stepper Motor for Control Body 700173* (Danaher)			2	705765
	2	Stepper Motors for Control Body 714844*		Sidestroke (Danaher)	1	705765
	3			Downstroke (Lin)	1	714829
	4	Washer, Teflon			1	697964
	5	Snap Ring			1	677376
	6	Snap Ring, Truarc 5100-39			1	126568
****	7	Ball Bearing			1	567555
****	8	Actuator Screw, Downstroke			1	708415
	9	Set Screw M5 x 10 mm (flat point, Nyloc)			2	516905
	10	Bearing Flange, Sidestroke (assembly requires items 4,5,6,7 and 11)			1	685076
	11**	Bearing Shaft (Sidestroke Actuator Screw)			1	685078
	12	Control Body			1	700151
****	13	Cant Key O-ring, Parker 2-210-0V			1	578331
****	14	Cant Key			1	call
	15	Cant Key Label			1	call
	16	Dowel Pin, 6 mm dia x 12 mm			2	544998
	17	Guide Bushing, Ceramic			1	528787
	18	Btn Hd Cap Scr M4 x 6 mm (zinc plated alloy)			1	134010
	19	Sensor Cable Assembly (only the sensor is shown here)			1	716335
	20	Soc Hd Cp Scr M2 x 10 mm			4	685105
****	21	Bellows			1	528809
	22***	Dovetail Lock Assembly (Reference Drawing 700106)			1	call
	23	Btn Hd Cp Scr M4 x 10 mm			4	587990
	24	Washer, M4 Star			1	131362
	25	Motor Control Module (Reference Drawing 712127)			1	call
****	26	Fuse 1A, min 24 VDC			1	699133
	27	Washer			1	711585
	28	Washer, Fluorosilicone			1	709635
	29	Btn Hd Cp Scr M5 x 10 mm (black zinc plated)			4	693548
	30	Top Cover			1	685061
	31	Btn Hd Cap Scr M3 x 5 mm			2	530187
	32	Label, Warning			1	712531
	33	Plug			1	685109
	34	Light Pipe (LED Cover)			2	710270
	35	Faceplate			1	711511
	36	Boot (not shown)			1	710229
	37	Switch Nut			1	call
	38	O-ring (Parker 2-010)			2	126193
	39	Function Control Knob			1	709134
	40	Roll Pin, 3/32 dia x 3/8"			1	697606
	41	Label, Function Control Knob			1	528825
	42	Set Screw M4 x 6 mm (Nyloc)			1	130304

* Locate the date code sticker on the back of your knifeholder to determine your Control Body part number.

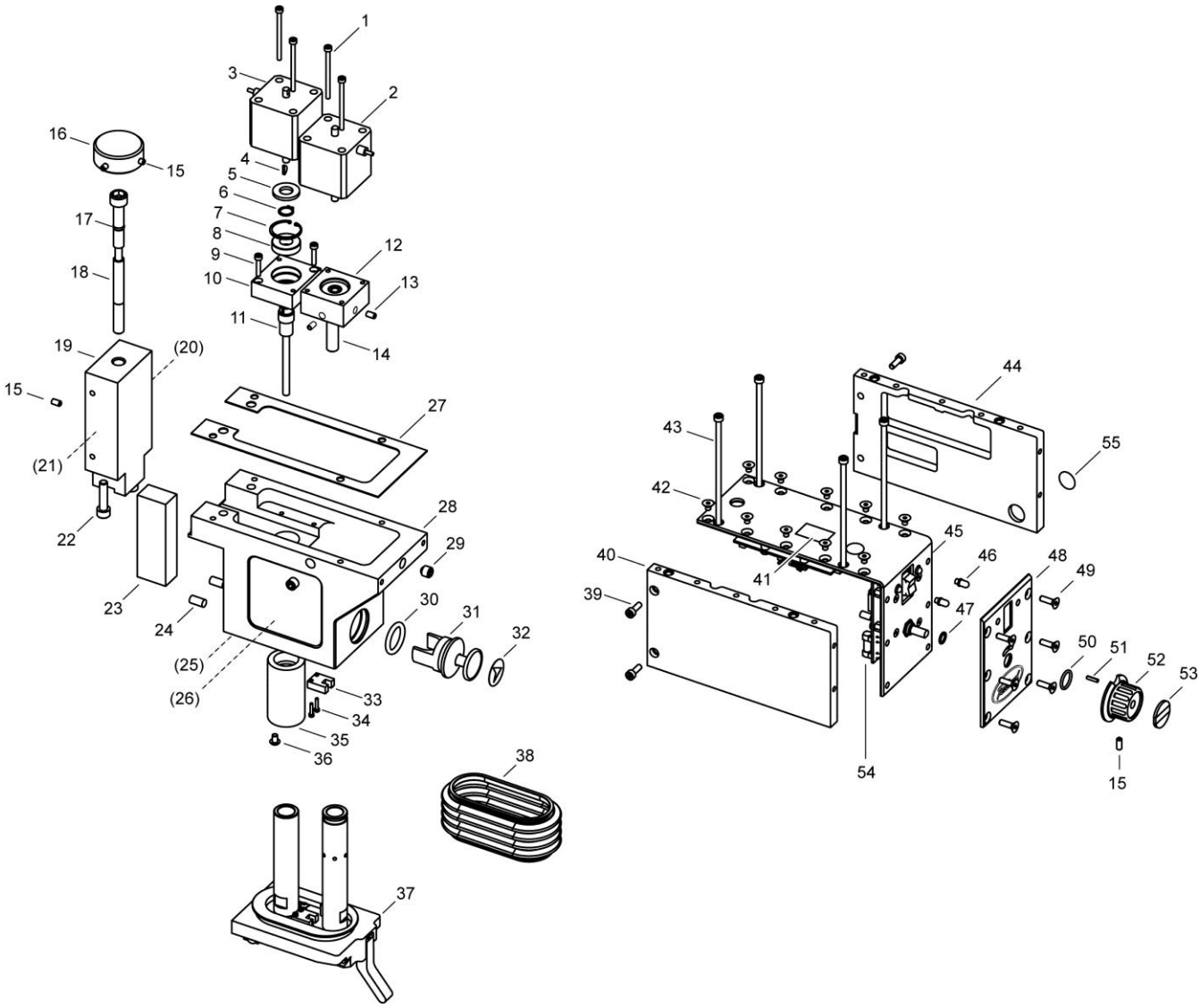
** Item 11 works with a calibrated internal actuator screw assembly (not shown). Do not remove the internal parts. **Warranty may be void if internal parts are removed.** If you cannot resolve a sidestroke issue by using the Troubleshooting section in this publication, Tidland recommends returning your knifeholder for factory repair and recalibration to ensure that it continues to perform as specified.

*** Item 22: To avoid damage to the electrical continuity of your knifeholder, do not attempt disassembly of the dovetail guide rods. Please contact Tidland for assistance with dovetail parts.

**** Recommended Spare Parts

Control Body

Class III



	Item	Description			Qty	Part No.
	1	Soc Hd Cap Scr	For Item 2	M3 x 45 mm (black oxide) with	2	685108
			For Item 3	Provided with motor	2	n/a
	2	Motor, Stepper (Sidestroke)			1	705765
	3	Motor, Stepper (Downstroke)			1	714829
	4	Key			2	677377
	5	Teflon Washer			2	697964
	6	Snap Ring, Truarc 5100-39			2	126568
	7	Snap Ring, Truarc N5000-86			2	677376
***	8	Ball Bearing			2	567555
	9	Soc Hd Cap Scr M3 x 16 mm			2	250049
	10	Bearing Flange, Downstroke			1	708414
***	11*	Actuator Screw, Downstroke			1	708415
	12	Bearing Flange, Sidestroke (assembly requires items 4-7, 13)			1	685076
	13	Set Scr M5 x 10 mm (flat point, Nyloc)			2	516905
	14	Bearing Shaft (Sidestroke Actuator Screw)			1	708416

Class Control Body (continued)

Class III

	Item	Description	Qty	Part No.
	15	Set Scr M4 x 10 mm (cup point)	4	250052
	16	Lock Knob	1	710215
	17	O-ring, Parker 2-009	1	126438
	18	Lock Screw	1	709919
	19	Top Block	1	708421
	20	Gasket, Right (not shown)	1	708388
	21	Gasket, Left (not shown)	1	708412
	22	Soc Hd Cap Scr M6 x 25 mm	2	130384
	23	Seal, Lower Body	1	708411
	24	Dowel Pin M6 x 12 mm	2	544998
	25	Gasket, Brake Lever (not shown)	1	708594
	26	Rubber Inlay Label (not shown)	2	708410
	27	Body Gasket	1	708408
	28	Lower Body	1	708409
****	29	Set Scr M8 x 8 mm long (zinc plated)	(2)	711325
***	30	Cant Key O-ring, Parker 2-210-0V	1	578331
***	31	Cant Key	1	call
	32	Cant Key Arrow Label	1	call
	33	Sensor Cable Assembly (only the sensor is shown here)	1	716188
	34	Soc Hd Cap Scr M2 x 10 mm	4	685105
	35	Ceramic Bushing	1	528787
	36	Btn Hd Cap Scr M4 x 6 mm	1	134010
	37**	Dovetail Assembly (Reference Drawing 700401)	1	call
***	38	Bellows	1	528827
	39	Soc Hd Cap Scr M4 x 12 mm	4	130145
	40	Side Plate, Left	1	709339
	41	Label, Warning	1	712531
	42	Flat Hd Soc Scr M4 x 6 mm (black)	10	555877
	43	Soc Hd Cap Scr M4 x 100 mm	4	710360
	44	Side Plate, Right	1	709340
	45	Motor Control Assembly (Reference Drawing 708429)	1	call
	46	Light Pipe (LED covers)	2	710270
	47	O-ring, Parker 2-010	1	126193
	48	Faceplate	1	710140
	49	Flat Hd Cap Scr M4 x 14 mm	6	587997
	50	O-ring, Parker 2-014	1	134173
	51	Roll Pin 3/32 dia x 3/8"	1	697606
	52	Function Control Knob	1	709134
	53	Function Control Knob Label	1	528825
***	54	Fuse 1A, min 24 VDC	1	699133
	55	Plug, Dome	1	753465

* Item 11 works with a calibrated internal spring assembly (not shown). Do not remove the internal parts. **Warranty may be void if internal parts are removed.** If you cannot resolve a sidestroke issue by using the Troubleshooting section in this publication, Tidland recommends returning your knifeholder for factory repair and recalibration to ensure that it continues to perform as specified.

** Item 37: To avoid damage to the electrical continuity of your knifeholder, do not attempt disassembly of the dovetail guide rods. Please contact Tidland for assistance with dovetail parts.

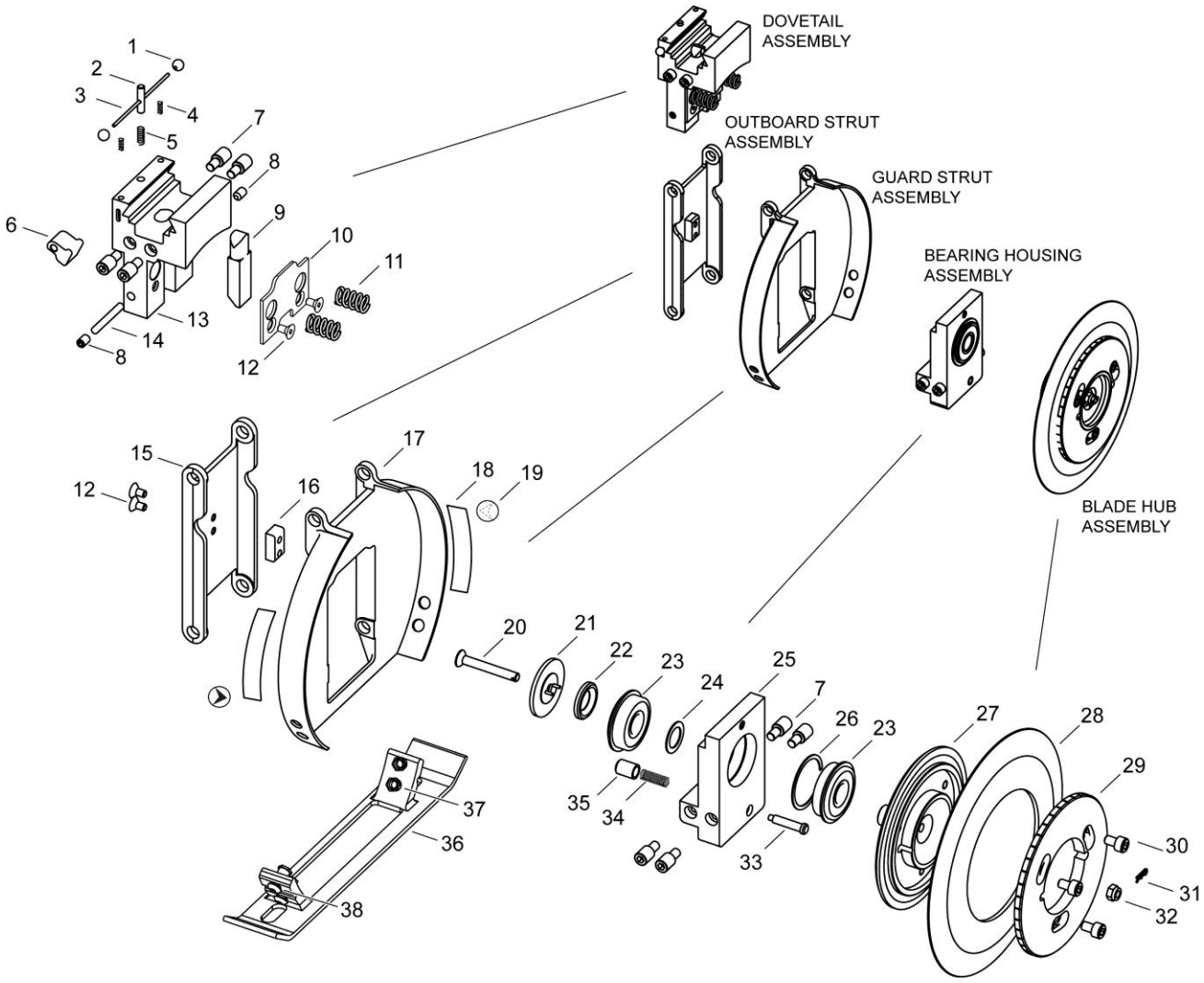
*** Recommended Spare Parts

**** e-Knifeholder assemblies built after Jan. 2011 may have only (1) set screw, located on the side.

Cartridge

Class II – Part No. 696317
Class III – Part No. 700518

Cartridge lubrication points (p. 61)



Cartridge

Class II – Part No. 696317
Class III – Part No. 700518

	Item	Description		Qty	Class II	Class III
**	1	Safety Latch Knob		2	131116	131116
	2	Safety Lock Pin		1	131114	131114
	3	Safety Latch Pin		1	131115	132891
	4	Safety Lock Spring		2	131119	131119
	5	Spring		1	562861	562861
	6	Crank Lever		1	696322	708443
	7	Pivot Stud		8	535263	535263
	8	Set Scr M5 x 8 mm		2	130148	130148
	9	Side Stroke Key		1	696320	708446
	10	Side Stroke Key Retainer		1	696319	708445
	11	Return Spring		2	131118	131118
	12	Flat Hd Cap Scr	M4 x 8 mm	2	696326	–
			M5 x 10 mm	2	–	535196
	13	Dovetail		1	696321	708444
	14	Dowel Pin M4 x 30 mm		1	696325	696325
	15	Strut, Outboard		1	696323	708442
**	16	Plastic Ramp		1	696324	696324
	17	Strut, Guard		1	696318	536838
	18	Label, Warning		2	130921	130920
	19	Label, Cant Key Direction		2	547635	547635
	20	Bearing Retainer Cap Screw		1	524549	518520
	21	Bearing Cap Assembly		1	515511	515511
	22	Shoulder Ring		1	631251	631251
**	23	Ball Bearing		2	743019	743019
	24	Shim		1	134304	134304
	25	Bearing Housing		1	524542	536837
	26	Snap Ring		1	134305	134305
	27	Blade Hub		1	524544	135009
**	28	Knife Blade		1	128401	129833
	29	Blade Clamp		1	524543	135010
**	30	Soc Hd Cp Scr Class 8.8	M5 x 8 mm	3	549838	–
			M5 x 10 mm	3	–	130168
	31	Cotter Pin		1	133710	133710
	32	Nut, Nylock M5		1	133235	133235
	33	Blade Lock Pin		1	130172	130172
	34	Blade Lock Pin Spring		1	130179	130179
	35	Blade Lock Cap		1	130173	130173
	36*	Blade Guard Safety Attach.		1	657175	657176
	37*	Btn Hd Cp Scr M5 x 10 mm		4	672181	672181
	38*	Standoff, SS, M5 x 8 mm		4	659101	659101
			* Parts available as a kit =		659076	659077

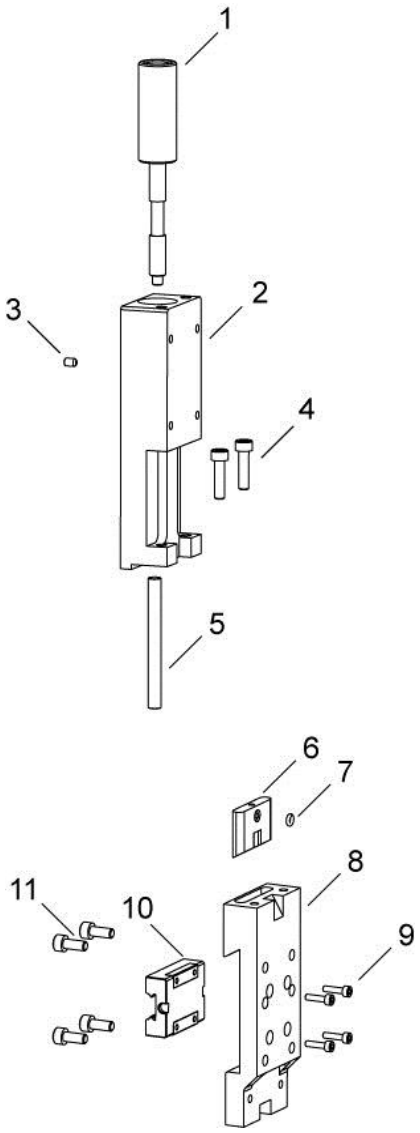
** Recommended Spare Parts

Knifeholder Mount

Easy Glider Linear Bearing Mount

Class II

Item	Description	Qty	Class II
	Top Block Assembly		
1	Lock Knob	1	531754
2	Top Block	1	685084
3	Set Screw M4 x 0.7 x 6 mm (Nyloc)	1	130304
4	Socket Head Cap Screw M5 x 0.8 x 20 mm (zinc plated)	2	544155
5	Lock Knob Extension	1	685085
	Backplate Assembly		
6	Brake Shoe	1	531758
7	Brake Shoe O-ring	1	130136
8	Backplate	1	685081
9	Socket Head Cap Screw M3 x 0.5 x 10 mm (zinc plated)	4	250235
10	Linear Bearing	1	621879
11	Socket Head Cap Screw M5 x 0.8 x 12 mm (zinc plated)	4	130467



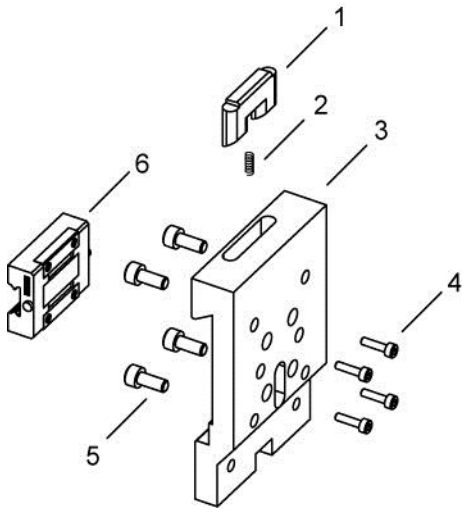
If the brake shoe (item 6) becomes lodged in the backplate, remove the brake shoe and lubricate the o-ring (item 7) with *Parker Super O-lube* o-ring lubricant.

Knifeholder Mount

Easy Glider Linear Bearing Mount

Class III

The Class III Top Block (not shown) is part of the Control Body Assembly (p. 64).



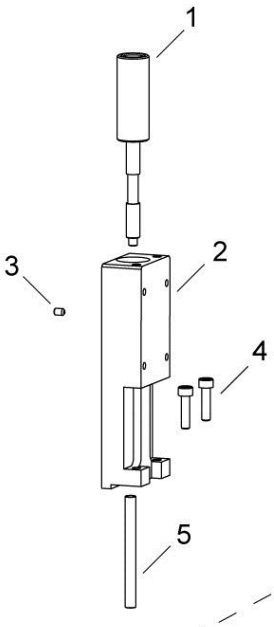
Item	Description	Qty	Class III
1	Brake Shoe	1	708406
2	Spring (Century 70207S)	1	709804
3	Backplate	1	708405
4	Socket Head Cap Screw M5 x 0.8 x 20 mm (zinc plated)	4	133180
5	Socket Head Cap Screw M3 x 0.5 x 12 mm (zinc plated)	4	130467
6	Linear Bearing	1	621879

Knifeholder Mount

Manual Mount

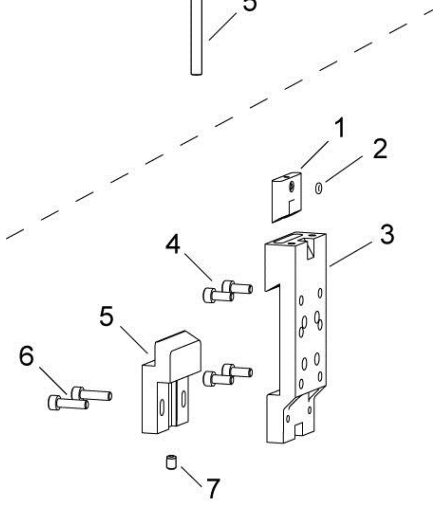
Class II

Item	Description	Qty	Class II
	Top Block Assembly		
1	Lock Knob	1	531754
2	Top Block	1	685084
3	Set Screw M4 x 0.7 x 6 mm (Nyloc)	1	130304
4	Socket Head Cap Screw M5 x 0.8 x 20 mm (zinc plated)	2	544155
5	Lock Knob Extension	1	685085



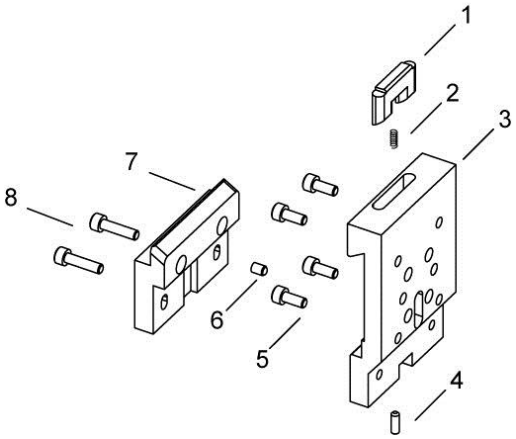
Item	Description	Qty	Class II
	Backplate Assembly		
1	Brake Shoe	1	531758
2	Brake Shoe O-ring	1	130136
3	Backplate	1	685081
4	Socket Head Cap Screw M5 x 0.5 x 12 mm (zinc plated)	4	133180
5	Gib	1	691407
6	Socket Head Cap Screw M5 x 0.8 x 20 mm (zinc plated)	2	544155
7	Set Screw M4 x 0.7 x 12 mm (Nyloc)	1	130149

If the brake shoe (item 6) becomes lodged in the backplate, remove the brake shoe and lubricate the o-ring (item 7) with *Parker Super O-lube* o-ring lubricant.



Class III

Item	Description	Qty	Class III
	Backplate Assembly Only		
1	Brake Shoe	1	708406
2	Spring (Century 70207S)	1	709804
3	Backplate	1	708405
4	Set Screw M4 x 0.7 x 12 mm (Nyloc)	1	130149
5	Socket Head Cap Screw M5 x 0.8 x 12 mm (zinc plated)	4	130467
6	Set Screw M5 x 0.8 x 8 mm	1	130148
7	Gib	1	700356
8	Socket Head Cap Screw M5 x 0.8 x 20 mm (zinc plated)	2	544155



Class III Top Block (not shown) is part of the Control Body Assembly (p. 64)

SPECIFICATIONS

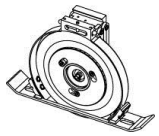
Tidland e-Knifeholder	Class II	Class III
Blade diameter	5.911" (150.14 mm)	7.879" (200.13 mm)
Minimum blade diameter (to maintain CE compliancy)	5.731" (145.58 mm)	7.774" (196.96 mm)
Blade overlap	± .0005"	± .0005"
Minimum slit width	2.0" (50.8 mm)	3.0" (76.2 mm)
Reversible blade cartridge	Yes	Yes
Designed maximum speed	5,500 fpm (1,676 mpm)	10,000 fpm (3,049 mpm)
Maximum downstroke	1" (25.4 mm)	1" (25.4 mm)
Maximum down force	100 lbs (445 N)	200 lbs (890 N)
Minimum side force	1 lb (4.4 N)	3 lb (13.3 N)
Maximum side force	12 lbs (53.4 N)	20 lbs (88.9 N)
Calibration time	11 seconds	11 seconds
Cant angles	1/2°, 3/4°, 1°	1/2°, 3/4°, 1°
Seal effectiveness	n/a	IP34
Power	24 VDC, 1 A	24 VDC, 1 A
Operating temperature	0-40º	0-40º
E-Knifeholder System Cabinet		
Electrical ratings	See page 11	See page 11
Fuses	See page 30	See page 30
Operating temperature	0-40º	0-40º
Option: pneumatic engage	40-90 psi	40-90 psi

TIDLAND KNIFEHOLDER ACCESSORIES

Blade Guard Attachment

An inexpensive way to minimize the risk of operator injury, this blade guard attaches easily to any Performance Series, C Series, or other knifeholders while maintaining existing minimum slit widths.

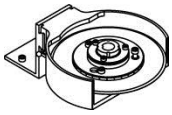
659075, Class I
659076, Class II
659077, Class III



Bench Fixture

Mount the Tidland bench fixture at any angle to make safe and easy off-machine blade changes and adjustments.

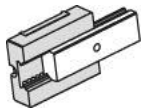
130796, Class I
130788, Class II
130822, Class III
Call; e-Knifeholder



***Easy* Glider Mount Assembly**

A cost-effective, easy-to-install solution for faster knifeholder positioning on manual or semi-automatic slitters that are currently equipped with Tidland Performance Series Knifeholders. (Requires *Easy* Glider guide bar.)

662077, Class I
615576, Class II
618966, Class III



Stainless Steel Protective Glove

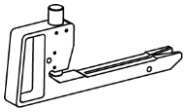
Woven metal fibers provide protection from slicing-type hazards.

132084

Blade Cartridge Transport Tool

Safely remove the blade cartridge from the knifeholder at the guide bar and transport it to the maintenance area.

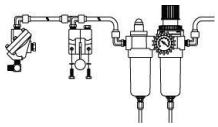
Class I, call Tidland
Class II, 743334
Class III, 744842



Coalescing Filter/Air Regulator Kit

The Coalescing Filter/Air Regulator fits between plant air supply and the knifeholder air manifold (single or dual manifold).

520984, single
520985, dual



Blade Cartridges with Knife Blades for Shear Slitting – Performance Series

Change blades in seconds with complete replacement assemblies.	Class I	Class II	Class III	e-Knifeholder
Manual Cartridge Assembly	551430	131061	132872	n/a
Automatic Cartridge Assembly	547613	524508	535264	CLII 696317 CLIII 700518

Knife Blades

90mm OD x 60mm ID, D-2	131937	N/A	N/A
90mm OD x 60mm ID x 6mm, D-2	131972	N/A	N/A
150mm OD x 80mm ID, 52-100 (25°)	N/A	128216	N/A
150mm OD x 80mm ID, D-2 (25°)	N/A	128401	N/A
150mm OD x 80mm ID, D-2 super finish (45°)	N/A	133399	N/A
150mm OD x 80mm ID x 10mm, D-2 (5°)	N/A	131973	N/A
200mm OD x 80mm ID, 52-100 (25°)	N/A	N/A	129832
200mm OD x 80mm ID, D-2 (25°)	N/A	N/A	129833
200mm OD x 80mm ID, D-2 super finish (45°)	N/A	N/A	133389
200mm OD x 80mm ID, Powdered Metal	N/A	N/A	501835

Knifeholder Performance

Note: Any problems experienced upon initial startup of the knifeholder system should be reported promptly. For any other issues that cannot be resolved with this Troubleshooting chart, call Tidland Customer Service (800.426.1000) for further assistance.

Problem	Possible Cause	Recommended Solution	Page
Cartridge moves but does not calibrate Blade drives into anvil; does not calibrate	Resistance threshold exceeded	Use an ohmmeter to confirm ≤5KΩ between ground and the anvil ring; confirm ≤500Ω between the knife blade and the control body dovetail. Renew contact between cartridge and control body.	10
Cartridge does not engage, calibrate or jog down	Resistance threshold exceeded	With the knife blade not touching anything, use an ohmmeter to confirm ≤500Ω between the knife blade and ground.	10
	Internal binding	Call Tidland for assistance with "Maintenance Mode," which may help you avoid knifeholder disassembly.	
Knifeholder does not operate – power LED is off	No power	Plug in power cable. Check power supply output / fuse.	23
	Fuse blown at knifeholder	Replace only with the same type, 1A, minimum 24 VDC fuse	
Knifeholder does not operate – power LED is on	External engage is off	To extend/retract the knifeholder, the external engage input must be on. Check the external engage relay in the Interface Cabinet.	24
Sluggish knifeholder action (extension or retraction)	Control body worn or motor malfunction.	Return knifeholder to Tidland for repair.	–
Knifeholder does not retract when Function control Knob is in red position.	Internal binding	Call Tidland for assistance with "Maintenance Mode," which may help you avoid knifeholder disassembly.	–
	No power (power LED is off)	Plug in power cable. Check power supply output / fuse.	23
Function control knob feels excessively tight.	Knob is contacting top cover.	Loosen function control knob set screw, pull the knob away from the cover, and then re-tighten set screw.	62
Difficult knifeholder movement on guide bar	Dirty guide bar	Clean and lubricate guide bar with *Dow Corning 557 Dry Film Lubricant.*	–
	Sticky brake shoe	Clean brake shoe. Clean and lubricate brake shoe o-ring. Use *Parker Super O-Lube.*	70

Knifeholder Performance (continued)

Problem	Possible Cause	Recommended Solution	Page
No Side Stroke (run or setup)	Blade cartridge not fully installed	Ensure blade cartridge is pushed securely into place on knifeholder and that the lock/unlock lever is in the locked position.	22
	Test to determine if problem stems from control body or blade cartridge	Remove non-functional blade cartridge and replace with functional blade cartridge.	22
	If after replacing the blade cartridge the **control body is functional** but the **blade cartridge is not**	Return control body and blade cartridge to Tidland for repair.	–
	Control body to blade cartridge interface	Ensure that blade cartridge safety lock pin is fully engaged with the control body and that the lock/ unlock lever is in the locked position.	22
		Sidestroke components are clogged with dust at the interface.	26
	Internal binding	Call Tidland for assistance with "Maintenance Mode," which may help you avoid knifeholder disassembly.	–
Side stroke occurs **before** completing down stroke	Bad calibration	Recalibrate the knifeholder.	25
Blade cartridge does not disengage	Internal binding	Call Tidland for assistance with "Maintenance Mode," which may help you avoid knifeholder disassembly.	–
Cannot remove blade cartridge	Sidestroke components are clogged with dust at the interface.	Extend blade cartridge and blow dust buildup from the cavity between cartridge and control body.	26
Knife blade rides up on top of anvil ring	Maximum side force combined with minimum overlap	Reduce side force or increase overlap. See *Main Screen Parameters*.	
Short blade life or damaged blade edge	Too much overlap	Calibrate to correct overlap.	
	Side force too high	Adjust Side Force to the minimum necessary to produce a good slit.	
	Driven anvil run-out	Reset anvil ring.	
	Maximum side force combined with minimum overlap	Reduce side force or increase overlap. See *Main Screen Parameters*.	

Slit Quality

Problem	Possible Cause	Recommended Solution	Page
The slit edge is fuzzy	Dull blade	Replace blade.	34
	Loss of cant angle (worn parts)	Replace cant key	20
	Wrong cant key	Replace cant key.	20
	Knifeholder is loose on the guide bar	Check the knifeholder to make sure that it is secure on the guide bar mount and check gib adjustment.	–
	Too much overlap	Calibrate to correct overlap.	13
	Incorrect setback	Check geometry.	
	Maximum side force combined with minimum overlap	Reduce side force or increase overlap. See *Main Screen Parameters*.	
Slit line is not straight	Driven anvil run-out	Reset anvil ring.	–
	Knifeholder is loose on the guide bar	Check the knifeholder to make sure that it is secure on the guide bar mount and check gib adjustment.	–
Web tears or splits	Incorrect setback	Check geometry.	
	Loss of cant angle (worn parts)	Replace cant key	20
	Too much overlap	Correct overlap by calibration.	13
	Insufficient overspeed of the driven anvil	Adjust overspeed to be 3-5% greater than the winder speed.	–
Web folds down	Loss of cant angle (worn parts)	Replace cant key	20
	Wrong cant key	Install correct key	20
	Cant key is incorrectly installed	Check web direction.	21
	Dull blade	Replace blade.	34
	Incorrect setup	See *Function Control Knob*.	13
Web breaks	Web tension is too high	Reduce tension.	–
	Low driven anvil speed	Check the driven anvil speed.	–
Web bunches up in front of knife blade	Insufficient overspeed of the driven anvil	Adjust overspeed to be 3-5% greater than the winder speed.	–
Change in roll width	Knife blade riding up on top of anvil ring caused by maximum side force combined with minimum overlap	Reduce side force or increase overlap. See *Main Screen Parameters*.	

Main Screen

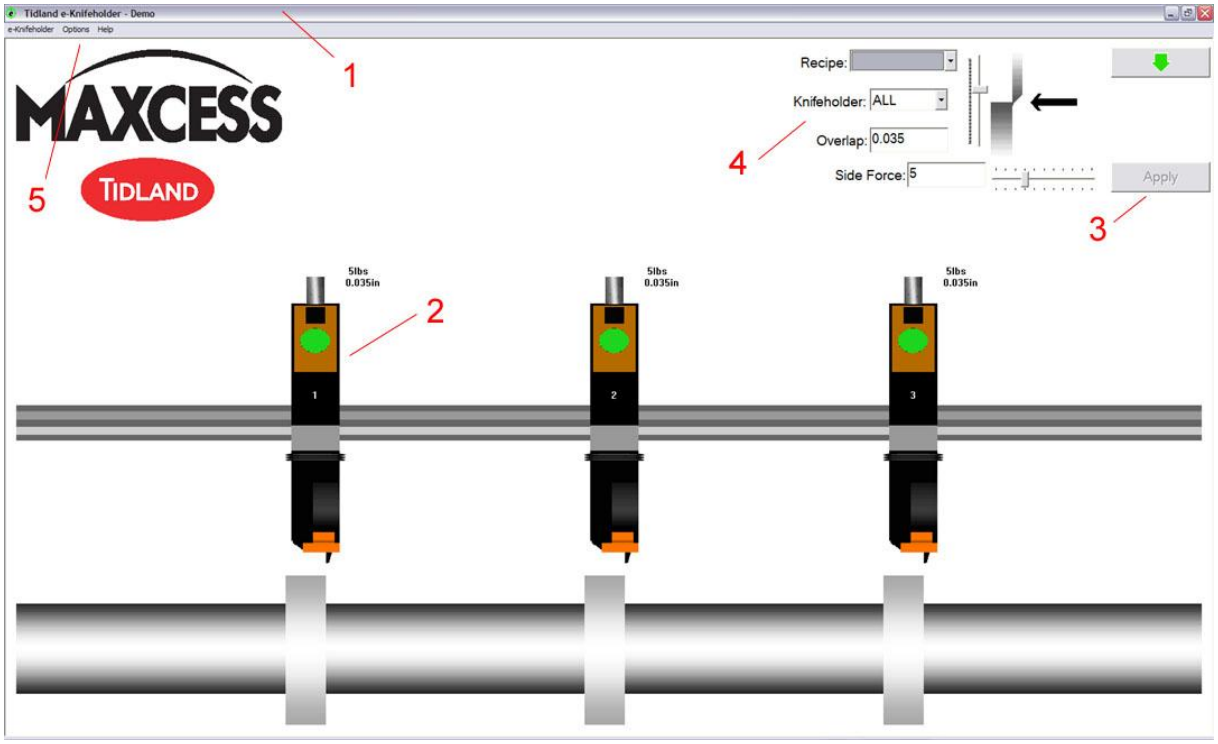
The e-Knifeholder software is used to:

- Set knifeholder parameters (overlap or side force)
- Allow remote operation (engage/retract)
- Troubleshoot a knifeholder

The main screen has several components:

1) Title bar
2) Icons that represent each knifeholder
3) Buttons to operate knifeholder(s)
4) Parameters to adjust overlap and side force
5) Menus to access other parts of the e-Knifeholder software

Example of the Main Screen



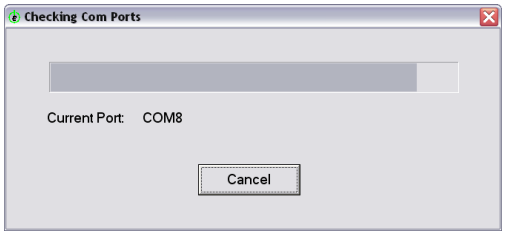
Demo Mode

Demo mode is used only to demonstrate system operation using on-screen knifeholder icons. The option to operate the system in Demo mode is available only if no serial ports or knifeholders are detected during startup.

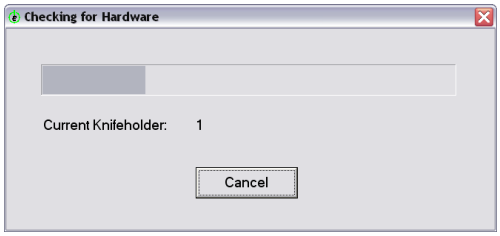
During normal operation, the system will start up in **system mode**, not Demo.
In order to start up in system mode, the system must pass two tests. It must:

1. Detect one or more serial communication ports, and
2. Detect at least one knifeholder.

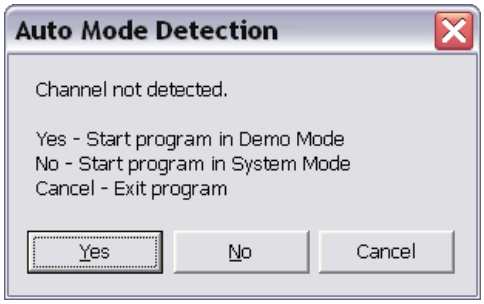
Detecting the serial communication ports looks like:



Detecting a knifeholder looks like:



If no serial ports or knifeholders are detected, you will be given the choice to enter Demo mode.



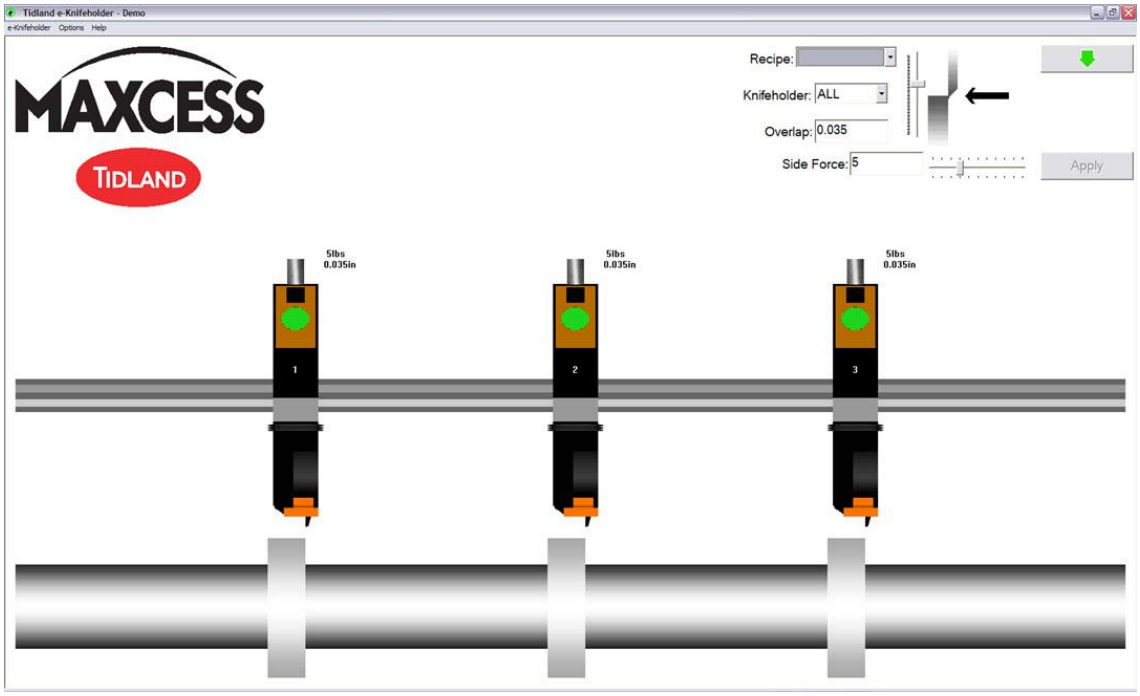
Select **Yes** to demonstrate software operation without controlling the actual knifeholder(s).

To confirm operating mode, note the name in the title bar located at the top of the display screen:

When in Demo mode, the title bar will include the text “Demo” in its name. This mode allows the knifeholder icons to operate on the screen, but will not control actual hardware.

When in System mode, the title bar will show only the name of the application. This is the mode for normal operation and allows control of the knifeholders displayed.

Knifeholder Icons



The status of individual knifeholders is represented by several diffferent icons:

The green dot on the knifeholder icon represents the switch status on the knifeholder. The switch is currently in the left position; the knifeholder is in the Green (run) position. The gap between the knife and the anvil represents a disengaged knifeholder. In this case, the external engage signal (operator station or PLC) is off.

The green dot on the knifeholder icon represents the switch status on the knifeholder. The switch is currently in the left position; the knifeholder is in the Green (run) position. The knife is **engaged to the anvil (no gap)** and ready to slit.

Knifeholder icons (continued)

The red dot on the knifeholder icon represents the switch status on the knifeholder. The switch is currently in the center position, the knifeholder is in the Red (retract) position. The knife is retracted away from the anvil.

The yellow dot on the knifeholder icon represents the switch status on the knifeholder. The switch is currently in the **right** position, the knifeholder is in the Yellow (setup) position. The knife will cycle through the calibration process.

The text above or to the right the e-Knifeholder icon represents the current settings of that e-Knifeholder. The upper value represents the overlap (in inches or mm), and the lower value represents the side force (in pounds or kilograms). To disable the display, set ***KHInfo*** equal to ***FALSE*** in the settings.txt file.

The Tidland logo is displayed in the upper left corner of the main screen. Clicking anywhere near the Tidland logo will remove the values (side force and overlap) displayed on a knifeholder.

Function Control Knob details (page 13)

Blade Details

To view Blade Details for any knifeholder on the system, press/click its icon on the Main Screen.

The Blade Details dialog box will open.

Example: Information is displayed for Knifeholder #3.

Overlap = depth of the knife below the anvil when engaged

Side Force = amount of pressure that the knife blade applies to the anvil when engaged

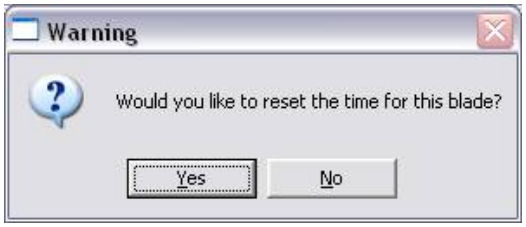
Hours of Use = how many hours the blade has been in use

Alarm Settings = number of hours at which operator will be notified that blade is dull

Cut Side = side of blade being used for cutting

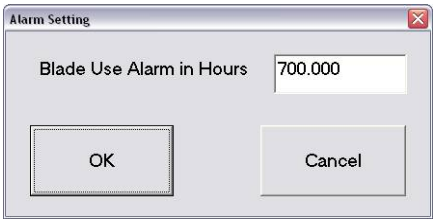
The Main Screen knifeholder icon will turn to a bronze color when the blade has exceeded the hours of use for which it was set.

Press/click the **Hours of Use** button to reset. Do this when a new blade is put into service.



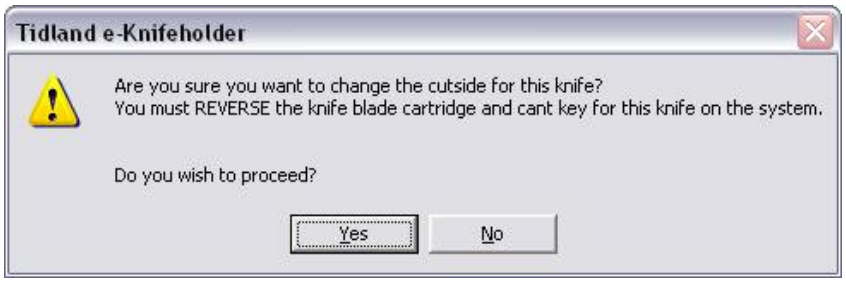
Yes = resets Hours of Use to zero
No = return to Blade Details dialog box

Press/click the **Alarm Setting** button to enter, in hours, the expectant life of the blade.



OK = Save.
Cancel = return to Blade Details dialog box.

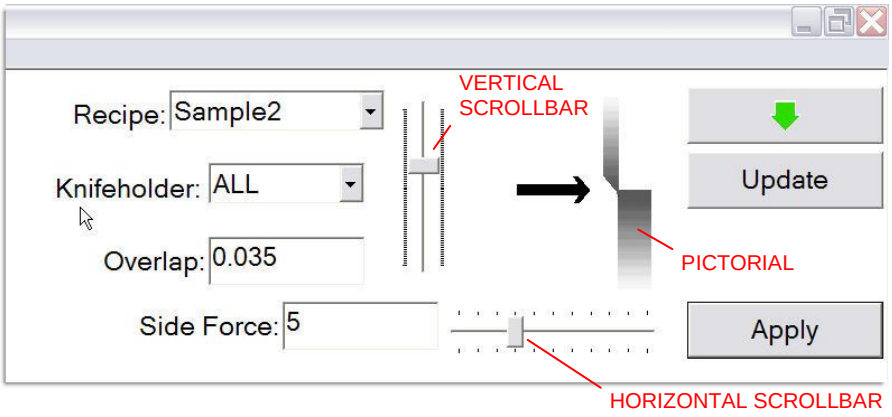
Press/click the **Cutside** button to switch the knife-to-anvil contact point from one side to the other.


Tidland e-Knifeholder
Are you sure you want to change the cutside for this knife?
You must REVERSE the knife blade cartridge and cant key for this knife on the system.
Do you wish to proceed?
Yes
No

The blade on the Main Screen icon will switch visually, but you must physically reverse the blade cartridge and the cant key on the actual knifeholder.

Main Screen Parameters

The upper right corner of the Main Screen:



Recipe
Collection of values assigned to each knifeholder. Select an existing recipe from this drop-down list or go to *Options* > *Manage Recipe* to edit or create a new recipe.
Entering any new value (overlap or side force) on the Main Screen overrides the recipe, removing the recipe name from the box.

Knifeholder
Select an individual knifeholder (or ALL) to which values will be applied.

Overlap
The depth of the knife below the anvil when engaged. This is the vertical movement represented in the pictorial above showing the knife and anvil. Change the value by clicking in the box labeled Overlap or use the vertical slider bar (scroll down to increase overlap value). **Note:** Tidland recommends an overlap of .030" (0.8 mm)

Side Force
The amount of pressure that the knife blade applies to the anvil when engaged. This is the horizontal force shown in the pictorial above. The amount of force is represented by the right-facing arrow:

large fat arrow is high force **small skinny arrow is low force**

Change the value by clicking in the box labeled Side Force or by using the horizontal slider bar.

High side force against minimal blade overlap can cause poor slit quality and may cause the e-Knifeholder blade to ride up on top of the anvil ring.

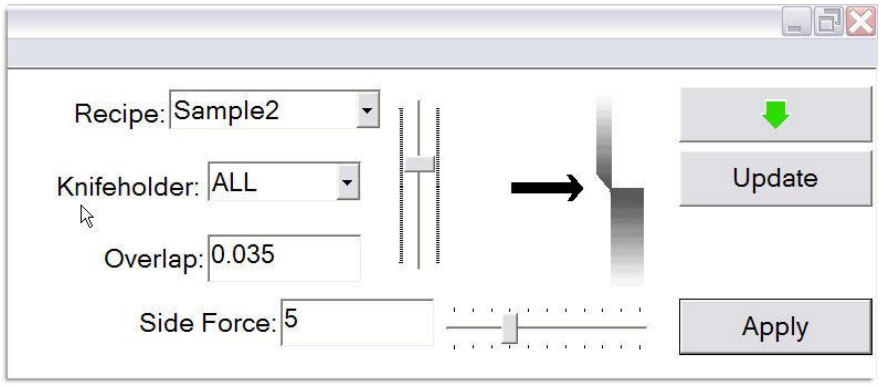
Use caution when setting the combination of parameters.

Overlap and/or Side Force boxes will display dashes (---) when individual knifeholder configurations vary from each other.

See Main Screen Buttons (p. 82)

Main Screen Buttons

The upper right corner of the main screen appears as follows.



Engage

Configured to show the action that will occur when the button is pressed; green will engage, red will disengage. (If the system has a vertical web path, the arrow direction is reversed.)

To use the engage button, select the knifeholder to be affected by the action.

- Choose a specific knifeholder by clicking the knifeholder icon or use the Knifeholder drop-down list to select an individual or ALL knifeholder(s).
- Click the engage button to extend the knives against the anvils for slitting. The external engage signal must be on for knives to engage.

When the system detects the knifeholders are engaging, the button changes to disengage state.

- Select a specific knifeholder or choose ALL from the Knifeholder drop-down list.
- Click the disengage button to retract the knives away from the anvils.
- Once the system detects the knifeholders are disengaging, the button changes to the engage state.

An external engage signal (p. 24) goes to each knifeholder. This has precedence over the user interface. The external engage signal must be on for the user interface to engage and disengage any knife. If the external engage signal is off, then the user interface cannot engage a knife. Refer to the electrical drawings at your installation for the wiring of the external engage signal.

Update

If enabled on your system, the Update button adjusts the knifeholders to the new values while in the engaged state. For information about this option, call Tidland Customer Service (1-800-426-1000).

Apply

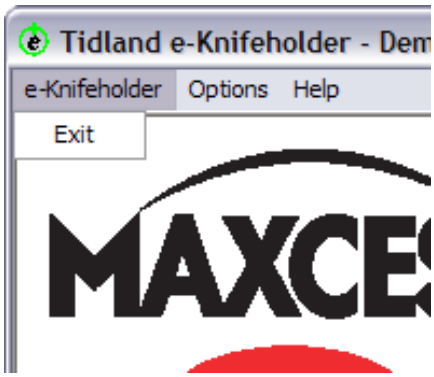
If a recipe name appears in the Recipe box, the Apply button applies the recipe to the knifeholder(s). If the Recipe box is blank, the button applies the values shown on screen to the knifeholder(s). The button is deactivated if the overlap and side force values are already the same as the knifeholder(s).

Once the values are applied to the knifeholders, you must disengage and re-engage the knifeholders in order to use the new values. The values will be stored permanently in the knifeholder, even if you lose power. **Note:** Any new values entered are not automatically saved as a recipe. See page 85 for information about recipes.

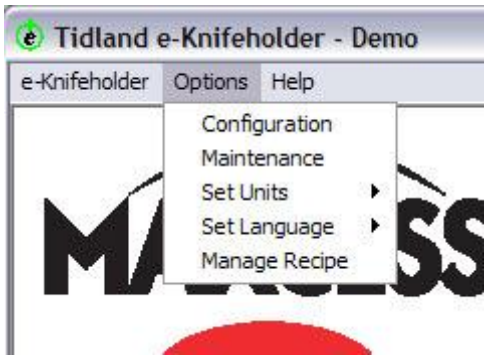
Main Screen Menus

The menu bar is located in the upper left corner of the main screen.

Use the **Exit** option in the **e-Knifeholder** menu to close the program.

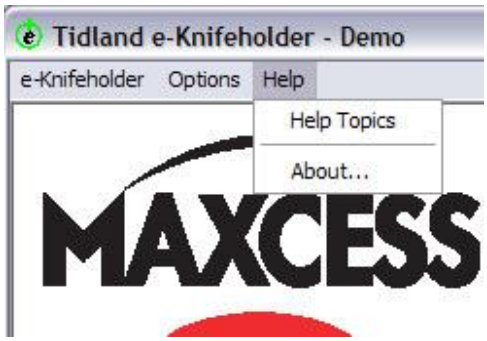


The **Options** menu contains the following:



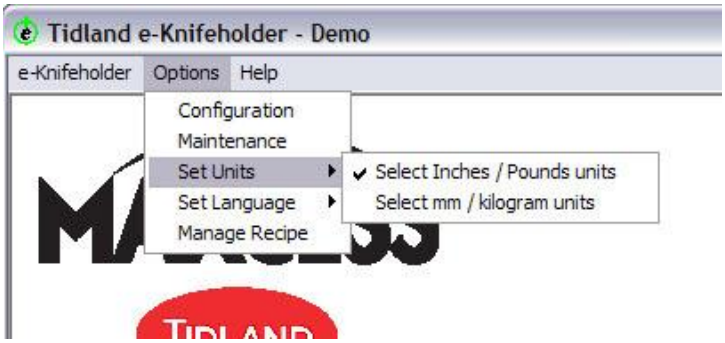
Configuration – p. 86
Maintenance – p. 88
Set Units – p. 84
Set Language – p. 84
Manage Recipe – p. 85

The **Help** menu allows access to the online help.
The **About** window contains the version and copyright notice for the software.



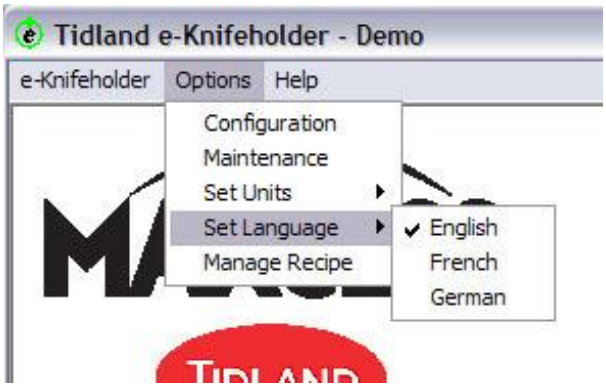
Selecting Units

Set Units provides English or Metric options.
Select English to display parameters in inches and pounds per foot.
Select Metric to display parameters in millimeters and kilogram force.



Selecting Language

Set Language allows you to change the language of the user interface. Options are currently English, French and German.



Manage Recipes

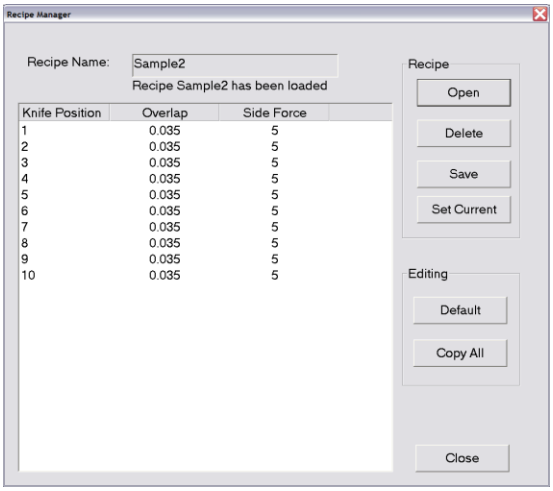
A *recipe* is a collection of values – overlap and side force – assigned to each knifeholder.
Select Options > *Manage Recipe* to open the Recipe Manager and view the current values for each knifeholder. If there are no saved recipes, the system displays the factory-set default recipe.

Change an Overlap or Side Force Value

Click on the overlap or side force value for knifeholder you wish to change and type in the new value. (If the touchscreen option is enabled, enter the new values using the number keypad.)

High side force against minimal blade overlap can cause poor slit quality and may cause the e-Knifeholder blade to ride up on top of the anvil ring.

Use caution when setting the combination of parameters.



Recipe Commands

Open
Access and retrieve saved recipes.

Delete
Deletes the currently displayed recipe.
To delete a saved recipe, press/click Open to retrieve the saved recipe and display it in the Recipe Manager. Press/click Delete.

Save
Opens the Recipe directory. Enter a new recipe name and press/click Save.

Set Current
Overwrites the saved recipe being displayed in the Recipe Manager.

Editing a Recipe

Default
Resets the recipe to the factory-set default.

Copy All
Copies the value last selected – overlap **or** side force – to the entire column.
Select a Knife Position row to copy all values – overlap **and** side force – in that row to all knifeholders.

Close: Exits the Recipe Manager without saving changes.

Selecting a recipe for use (p. 81)

Configuration

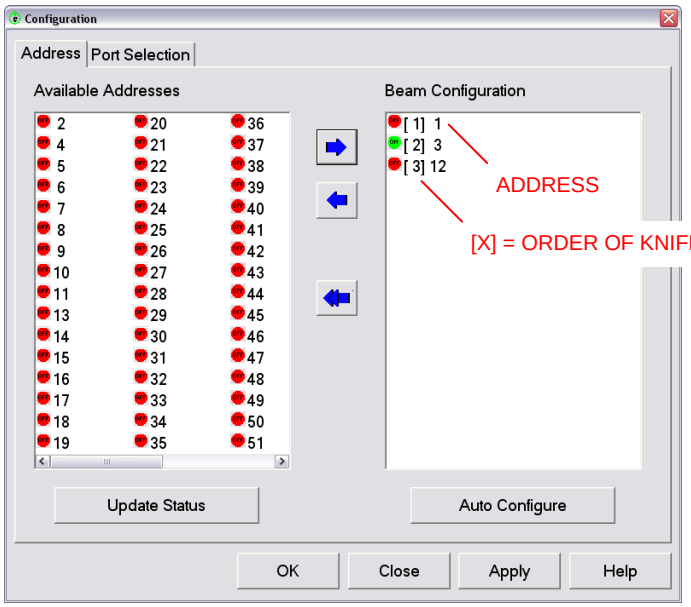
Address Tab

For use by System Administrator when adding, removing or replacing a knifeholder.

Knifeholders must be configured on the beam in order to be affected by parameter changes and displayed on the main screen.

- When **reinstalling** a replacement, set the address to match the knifeholder you are replacing.
- When **adding** a knifeholder, choose the next available address from Available Addresses.
- See Knifeholder Address table on page 27 for information on setting the address.

1. Install or remove the knifeholder.
2. Click Auto Configure. A progress bar will appear.
   TIP: If your knifeholders are addressed low, you can cancel Auto Configure when the progress bar is about 5-10% complete. (The system will check all addresses whether there is a knifeholder installed or not, which can take several minutes.)
3. When Auto Configure is complete, verify beam configuration, and then click Apply.



RED= KNIFEHOLDER NOT PRESENT IN SYSTEM
GREEN= KNIFEHOLDER PRESENT IN SYSTEM

Knifeholders not configured on the beam are not affected by parameter changes or displayed on the main screen.

Available Addresses
Represents knifeholder addresses not configured to display on the main screen.

Update Status
Checks all knifeholders and identifies their presence in the system.

Beam Configuration
Represents knifeholders installed on the guide bar and displayed on main screen.

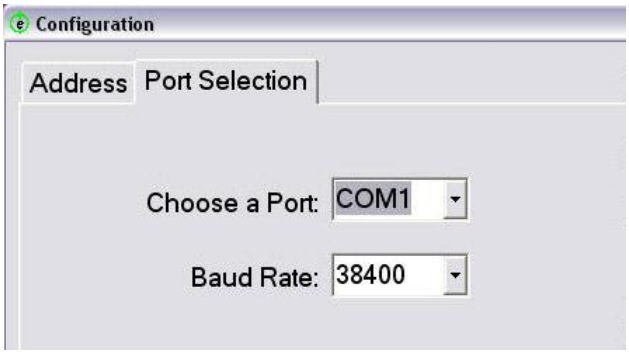
Auto Configure
Caution! This button resets beam configuration to include only knifeholders identified as present in the system.

OK: Saves changes and exits dialog box.
Close: Exits dialog box without saving changes.
Apply: Saves changes without exiting dialog box.
Help: Accesses online help files.

Configuration

Port Selection Tab

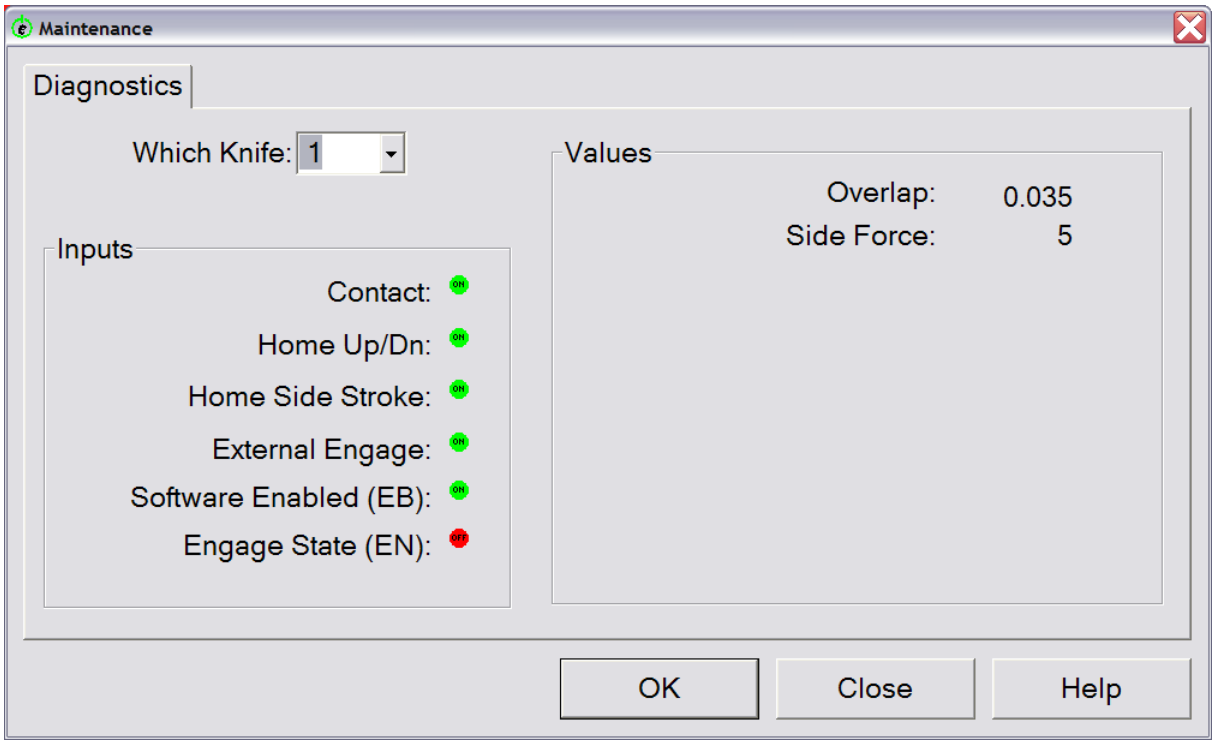
Select which port the software will use to communicate to the knifeholders.



Maintenance

Diagnostics

Select a knifeholder from the dropdown list to view its current settings.



(Green=ON / Red=OFF)

Contact
Connection exists between blade and anvil
On = blade and anvil are touching

Home Up/Dn
Home sensor for vertical stroke
On = blade is retracted

Home Side Stroke
Home sensor for side stroke
On = side stroke not engaged

External Engage
Input to engage or disengage the knifeholder; typically a relay located in the Power Supply Cabinet. Must be on for the Function Control Knob to operate the knifeholder

Software Enabled
Must be on for the Function Control Knob to operate the knifeholder

Engage State
Represents state of the knifeholder: engaged (green) or disengaged (red)

Installation Notes

1.1.17 – NOT RELEASED

- Requires no changes to install this version.

1.1.16 – December 11, 2012

- Requires no changes to install this version.

1.1.15 – September 18, 2012

- New values defined for operator access and password control. Default is full operator access to all functions. Use software Options / Configuration / (Password & Operator Configuration) to configure access to areas of software. No password defaults to administrator access.
- Need new axis files downloaded to all e-Knifeholders.

1.1.14 – June 28, 2012

- Requires no changes to install this version..

Version 1.1.13 –April 5, 2012

- Requires no changes to install this version..

Version 1.1.12 – February 14, 2012

- Requires no changes to install this version..

Version 1.1.11 – January 30, 2012

- Requires no changes to install this version..

Version 1.1.10 – January 25, 2012

- New feature called KHInfo, defaults to TRUE. To disable feature, change to FALSE. For additional information see the Revision History.

Version 1.1.9 – November 30, 2011

- Requires no changes to install this version.

Version 1.1.8 – November 2, 2011

- New feature called CalibrateEnable defaults to FALSE. To enable feature, change to TRUE.

Version 1.1.7 – October 14, 2011

- Requires no changes to install this version.

Version 1.1.6 – June 8, 2011

- Requires no changes to install this version.

Version 1.1.5 – May 23, 2011

- Requires no changes to install this version.

Version 1.1.4 – May 13, 2011

- Requires no changes to install this version.

Version 1.1.3 – April 29, 2011

- Requires no changes to install this version.

Version 1.1.2 – March 22, 2011

- Requires no changes to install this version.

Version 1.1.1 – December 14, 2010

- Requires no changes to install this version.

Version 1.1.0 – November 3, 2010

- Requires no changes to install this version.

INSTALLATION NOTES

Version 1.0.6 – August 17, 2010

- New feature called UpdateNow, defaults to FALSE. Set to TRUE to enable updating e-Knifeholder overlap / side load while engaged. NOTE: May damage blade if overlap is increased while anvil is NOT turning!

Version 1.0.5 – March 19, 2010

- Requires no changes to install this version.

Version 1.0.4 – January 25, 2010

- Requires changing the ElectType to C2IMSTwo or C3IMSTwo in the settings file

Version 1.0.3 – November 28, 2009

- Requires no changes to install this version.

Version 1.0.2 – May 27, 2009

- Requires no changes to install this version.

Version 1.0.1 – January 16, 2008

- Requires no changes to install this version.

Software Revision History

Version 1.1.17 – NOT RELEASED

1.

Version 1.1.16 – December 11, 2012

1. Added touch motor counts for overlap and side touch to diagnostics screen (in maintenance).

Version 1.1.15 – September 18, 2012

1. Changed initial dialog asking about starting demo mode so default Yes starts program in system mode. Pressing [Enter] now starts in system mode, not demo mode by default.
2. Added password access control. Includes operator access configuration screen.
3. Change to e-Knifeholder axis files. Must download to be effective. Will prevent operation when external engage is off. This prevents e-Knifeholder from getting confused and stuck. Must have external engage signal present to operate e-Knifeholder.

Version 1.1.14 – June 28, 2012

1. Added QB to motor program. This allows a delay between down and side stroke movements to prevent system over current problems. Default is 400ms. Set to 1ms for original speed and for few e-Knifeholders.
2. Fix bug in Class II, axis 2 motor program that references a not defined variable.
3. Update to Visual Studio 2010.

Version 1.1.13 – April 5,2012

1. If the KHInfo is enabled in the settings file, the screen will use a more dynamic approach to the way the knife information is displayed. Large and small systems will be able to use this feature and not have issues with the text overlapping other text or images on the screen.
2. Updated more code in the common libraries.

Version 1.1.12 – February 14, 2012

1. Updated common software library. Should have no effect on e-Knifeholder portion.

Version 1.1.11 – January 30, 2012

1. Added the ability to switch languages in Windows 7. Previously, the software relied on the host OS for the primary language.
2. Added more German translations.

Version 1.1.10 – January 25, 2012

1. On an update or Apply of e-Knifeholder settings (side force and overlap), the main UI thread pauses and waits until the settings are updated before resuming. E-Knifeholders on the screen will no longer blink red, or show any other abnormalities.
2. The software now can display the current running parameters of each e-Knifeholder. Location based on web path, and amount of e-Knifeholders installed on the system.
3. If the user clicks on the ***Recipe Manager*** item in the ***Options*** menu, the current running values are automatically transferred to the screen to ease creation of recipes.
4. Added more thread protection for transferring data to the e-Knifeholders.
5. Added delay for save and reset to e-Knifeholders to allow time for hardware to reset.
6. Added translated German strings to the software.

Version 1.1.9 – November 30, 2011

1) Language strings updated. Recipe strings added.
2) E-Knifeholder objects moved to a Common folder for incorporation into other software systems.

Version 1.1.8 – November 2, 2011

1) Added Calibrate feature to main screen; default is to not show button. Allows calibration of e-Knifeholders from PC (remotely) instead of using yellow position at the e-Knifeholder.

SOFTWARE REVISION HISTORY

Version 1.1.7 – October 14, 2011

1) Removed getting software enable from e-Knifeholder during updating of blade data files. This process slowed down screen updates.
2) Fix bug in blade details that could cause program to crash when exiting.

Version 1.1.6 – June 8, 2011

1) Added blade life tracking of installed e- Knifeholders.
2) Added blade detail for e-Knifeholders installed on the system. When knifeholder icon is clicked, a dialog box opens up and displays Knifeholder location, Overlap, Side force, Blade life hours and alarm setting, and Cut side.

Version 1.1.5 – May 23, 2011

1) Added ability to automatically detect e-Knifeholders type (Class 2 or Class 3) at startup and when the user runs “Auto Configure” from within the Configuration dialog box.
2) Adjusted timing of “*” commands to e-Knifeholders for better control of unspecified data.

Version 1.1.4 – May 13, 2011

1) Fixed internal calibration load cell readings to work with new serial library.
2) Fixed bug in Axis 2 files from version 1.1.3.

Version 1.1.3 – April 29, 2011

1) e-Knifeholder program changes to work better for multi-groove anvil rings. QI variable can now be set for a value half stroke plus an amount. Used to be QM (maximum side engagement).

Version 1.1.2 – March 22, 2011

1) Added ability to store recipes of knifeholder settings. A recipe is a collection of overlap and side force settings for each knifeholder.
2) Code now uses common components with other Tidland software.
3) Update to common components fixed several potential issues with old software.

Version 1.1.1 – December 14, 2010

1) Updated First Knife Left. First Knife Left was in the settings file, but was not functioning. Changing the settings file now changes the orientation of the knives on the screen.
2) Fixed problem when downloading and other send and read on port for IMS motors. There was a problem because IMS ending character is a > sign. Problems could be encountered because the code could also contain a > sign.
3) Also fixed communication problem when sending “*” commands to e-Knifeholders. This was causing bad values to be read from e-Knifeholders.

Version 1.1.0 – November 3, 2010

1) New Serial communication library. Faster communication.
2) Fixes problem with power cycle and e-Knifeholder software being in sync and able to control e-Knifeholder engagement.

Version 1.0.6 – August 17, 2010

1) Added shop project configuration for setup/testing of e-Knifeholders at Tidland.
2) Additional Internal Calibration changes to write data on demand.
3) Added ability to update overlap and side stroke while engaged. NOTE: Anvil should be turning to prevent damage to blade.

Version 1.0.5 – March 19, 2010

1) Internal Calibration fixes and integration to Tidland systems.
2) Updated terminal window to use ESC key to exit properly.

Version 1.0.4 – January 25,2010

1) Knife holder program now accesses class 2 and class3 for IMS motor program. Settings file enum type must be set for class2 or class3 with ElectType.
2) Axis files have been changed from Axis to C2Axis or C3Axis.
3) The Internal calibration for class 2 now prints a label and writes knife information to a file..

SOFTWARE REVISION HISTORY

Version 1.0.3 – November 28, 2009

1) Speed up knife updating – some. Still needs to be faster for more knifeholders.
2) Fixed bug when increasing number of knifeholders, the Address1 and Address2 fields in settings file were not updated properly during auto-config.
3) Internal calibration modified to use cartridge. Still may require more changes in the future.
4) Prevent new knifeholders from zeroing out the internal slope and offset values (Z6 and Z9).

Version 1.0.2 – May 27, 2009

1) Added Knifeholder troubleshooting (hold jog down during power up).
2) Modified program to download Knifeholder program during startup.
3) Added Knifeholder address configuration. Includes auto configuration or manual. Changing the number of beam knives will change how many are installed on the system.
4) Added diagnostics mode – to help troubleshoot Knifeholder functionality.
5) Fixed bug (bad directory path) when accessing Axis1.txt and Axis2.txt.

Version 1.0.1 – January 18, 2008

1) Fixed double click on engage button causing button to be out of sync with the Knifeholder.
2) Knifeholders now update automatically – including reading switch positions.
3) Includes main screen German and French translation.
4) Added capability in demo mode to change switch position on knifeholder.
5) Added additional com port validation.
6) Modified default file directory to include “Files” – where log and help files are stored. Removed extra port number from settings file.
7) Fixed bug that prevented touch pad (side force) from opening after applying knife parameters.

New software created June, 2007 v1.0

TIDLAND SLITTING SOLUTIONS

Declaration of Incorporation

Manufacturer
Tidland
2305 SE 8th Street
Camas WA 98607 U.S.A.
360.834.2345

Authorized Representative
Francesco Cristante
Fife-Tidland GmbH
Fifestrasse 1
65779 Kelkheim, Germany
+49.6195.7002.0

Designation **Tidland e-Knifeholder, Class II and Class III with System Cabinet Models: EKH5-5S, EKH5-1S, EKH20-1S**

was developed and manufactured in conformity with the EC-directives

2006/42/EG Machine directive
2004/108/EC EMC directive

in sole responsibility of

Company Tidland
2305 SE 8th Street
Camas WA 98607 U.S.A.

The following harmonized standards are applied

EN ISO 12100	Safety of machinery; basic concepts
EN ISO 13857	Safety of machinery; safety distance
EN 1034-1	Safety of machinery; safety requirements for design and construction, common requirements
EN 1034-3	Safety of machinery; safety requirements for design and construction, winders and slitters
EN 61000-6-2	EMC regulation; immunity
EN 61000-6-4	EMC regulation; emissions
EN 61000-3-2	EMC regulation; harmonics
EN 61000-3-3	EMC regulation; flicker

A complete list of the applied standards, guidelines and specifications is present with the manufacturer. The technical documentation is complete and present. The Installation instruction / Operation instruction belonging to the knifeholder is present.

Authorized Person for Documentation Tidland
2305 SE 8th Street
Camas WA 98607 U.S.A.

The start-up of this knifeholder is forbidden until determined that the control, which the operator understands, and the machine into which it has to be assembled correspond with the regulations of the applicable EC-guidelines.

Camas WA 2/29/12	Jami Haque	Jami Haque, Director of Research & Development
Place / Date of Issuance	Authorizing Person's Signature	Authorizing Person's Title / Printed Name

NORTH, CENTRAL AND SOUTH AMERICA
Tel +1.360.834.2345
Fax +1.360.834.5865
sales@maxcessintl.com
www.maxcessintl.com

EUROPE, MIDDLE EAST AND AFRICA
Tel +49.6195.7002.0
Fax +49.6195.7002.933
sales@maxcess.eu
www.maxcess.eu

CHINA
Tel +86.756.881.9398
Fax +86.756.881.9393
info@maxcessintl.com.cn
www.maxcessintl.com.cn

INDIA
Tel +91.22.27602633
Fax +91.22.27602634
india@maxcessintl.com
www.maxcess.in

JAPAN
Tel +81.43.421.1622
Fax +81.43.421.2895
japan@maxcessintl.com
www.maxcess.jp

KOREA, TAIWAN, AND SE ASIA
Tel +65.9620.3883
Fax +65.6235.4818
asia@maxcessintl.com

© 2013 Maxcess